SERVICE MANUAL

FISHER

MCE-4050

Hi-Fi MUSIC SYSTEM
(EUROPE)

The first name in high fidelity

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SPECIFICATIONS

AUDIO SECTION

Continuous Power	
DIN Power (4 ohms) at 40 Hz to 20 kHz	50 + 50 W
Music Power at 1 kHz	80 + 80 W
Harmonic Distortion at Rated Power	1.0 %
SP Damping at 1 kHz (4 ohms)	20
Input Sensitivity Impedance	
Phono (internal only)	2 mV/50 kohms
Aux	150 mV/100 kohms
Microphone	0.6 mV/600 ohms
Frequency Response	
Phono (30 Hz to 15 kHz)	±1 dB
Aux (20 Hz to 20 kHz)	±1.5 dB
Microphone (100 Hz to 10 kHz)	−6 dB
Tone Control Response	
Bass Control at 100 Hz	±10 dB
Treble Control at 10 kHz	±10 dB
Filter Response	
High Filter (6 dB/oct.) at 5 kHz	−6 dB
Low Filter (6 dB/oct.) at 30 Hz	−6 dB
Loudness Control at −30 dB position	
at 100 Hz	+8 dB
at 10 kHz	+4 dB
Signal to Noise Ratio (Rated Power & Input Shorted/DIN)	
Phono	65 dB
Aux	70 dB
Microphone	65 dB

FM TUNER SECTION

Frequency Range	88 MHz to 108 MHz
Usable Sensitivity (DIN)	
Mono/Stereo	1.5 μV/4.0 μV
50 dB Quieting Sensitivity	
Mono/Stereo	6.5 μV/50 μV
Signal to Noise Ratio at 1 mV	
Mono/Stereo	68 dB/60 dB
Harmonic Distortion at 1 mV	
Mono/Stereo	0.2 %/0.5 %

SPECIFICATIONS (Continued)

FM TUNER SECTION

Harmonic Distortion at 50 dB Quieting	
Mono/Stereo	0.7 %/1.0 %
AM Suppression at 30 % mod. 400 Hz	56 dB
Spurious Rejection at fe + 1/2 IF	75 dB
Image Rejection at 98 MHz	56 dB
IF Rejection at 98 MHz	80 dB
Alternate Channel Selectivity (DIN)	60 dB
Capture Ratio	2 dB
Deviation Sensitivity	12.5 kHz
Audio Frequency Response	
Mono +0 dB/−1 dB	20 Hz to 15 kHz
Stereo +0 dB/−1 dB	20 Hz to 15 kHz
Stereo Separation	
100 Hz/1 kHz/10 kHz	30/40/30 dB
Stereo Channel Balance	2 dB

MW TUNER SECTION

Frequency Range	535 kHz to 1605 kHz
Usable Sensitivity (S/N 20 dB)	300 μV/m
S/N at 100 mV Input	55 dB
Image Rejection at 1000 kHz	50 dB
IF Rejection at 1000 kHz	35 dB
Spurious Rejection	30 dB
Selectivity at ±10 kHz	43 dB

SW TUNER SECTION

Frequency Range	4 MHz to 12 MHz
Usable Sensitivity (Generator connects to external antenna terminal)	200 μV
S/N at 100 mV Input	54 dB
Image Rejection at 6 MHz	40 dB
IF Rejection at 6 MHz	40 dB
Selectivity	35 dB

LW TUNER SECTION

Frequency Range	150 kHz to 350 kHz
Usable Sensitivity (S/N 20 dB)	700 μV/m
S/N at 100 mV Input	54 dB
Image Rejection at 250 kHz	40 dB
IF Rejection at 250 kHz	40 dB
Selectivity	35 dB

CASSETTE DECK SECTION

Wow & Flutter (DIN)	0.16 %
Speed Accuracy (Play)	±2 %
Record Play Frequency Response	
CrO2 Dolby Off	
−7 dB Frequency Range	30 Hz to 16 kHz
Signal to Noise Ratio	
CrO2 Dolby Off	52 dB
CrO2 Dolby On	60 dB
Harmonic Distortion	
Fe2O3	1 %
Channel Separation	
Fe2O3	40 dB
Erase Ratio	
Fe2O3	60 dB
Input Sensitivity	
Mic Fe2O3	0.6 mV
Aux Fe2O3	150 mV
Channel Balance	3 dB
Fast Forward & Rewind Time (C-60 Tape)	120 sec

TURNTABLE SECTION

Motor Drive System	
Turntable-Drive	Linear Synchronous Motor Direct Drive System
Tonearm-Drive	Coupled to Platter
Platter Material	Aluminum Die-Cast
Diameter/Weight (with Mat)	312 mm/1kg
Tonearm Data	
Type	Static Balance
Effecitve Length	222 mm
Bearings Horizontal	Thrust
Vertical	Pivot
Cue Control	Viscous-Damped
Anti-Skate System	Calibrated Spring Type
Balance Method	Adjustable Counter-weight
Tracking Force	Calibrated Counter-weight
Vertical Tracking	Adjustable Counter-weight
Cartridge Data	
Type	MG-35V
Frequency Response	25 Hz to 25 kHz
Separation at 1 kHz	25 dB
Output Voltage	2.7 mV
Compliance at 1 kHz	10×10^{-6} cm/dyne
Tracking Force	2.0 to 2.5 g
Stylus (ST-35VD)	0.5 mil Diamond
Weight	5.5 g
Load Impedance	50 kohms
Tonearm Mechanical Data	
Cartridge Weight Range	4 to 11 g
Max Tracking Error	$+3°, -1°$
Min Tracking Force	1.5 g
Friction Horizontal	0.15 g
Vertical	0.2 g
Counterweight Calibration Accuracy	±0.5 g
Anti-Skate Calibration Accuracy (for elliptical stylus)	±0.5 g
Electircal Data	
Wow & Flutter at 33-1/3 RPM	0.04 %
Rumble at 33-1/3 RPM	65 dB

GENERAL

Power Requirements (Switchable)	AC: 110/220 V 50/60 Hz
Dimensions (W x D x H)	655 x 410 x 210 mm
Power Consumption	365 W
Weight (approx.)	18 kg

* Specifications are subject to change without notice.

DISASSEMBLY INSTRUCTIONS

A. REMOVAL OF TURNTABLE UNIT (Fig. 1)

1. Remove the hinges from the main unit and then, the dust cover.
2. Remove the Rubber Mat and the Trip Ring Plate.
3. Remove the E-ring (A1) from the turntable spindle with a minus screwdriver.
4. Then, remove the turntable platter.
5. Unscrew two screws (A2) and four screws (A3).
7. Lift the back of the turntable board and then, pull it out. Disconnect two 3P Connector (A4) from the Power Supply P.C.B. Assembly and the red and white RCA Plug Pins (A5) from EQ Function P.C.B. Assembly. Then, the turntable unit can easily be separated.

B. REMOVAL OF CASSETTE DECK UNIT (Fig. 1)

1. Unscrew two screws (B1) fastening the Cassette OSC Assembly (B2).
2. Unscrew four screws (B3) fastening the Cassette Deck Unit and lift the unit off the main unit.
3. Disconnect three black Connectors (B4). Then, the cassette deck unit can be separated.

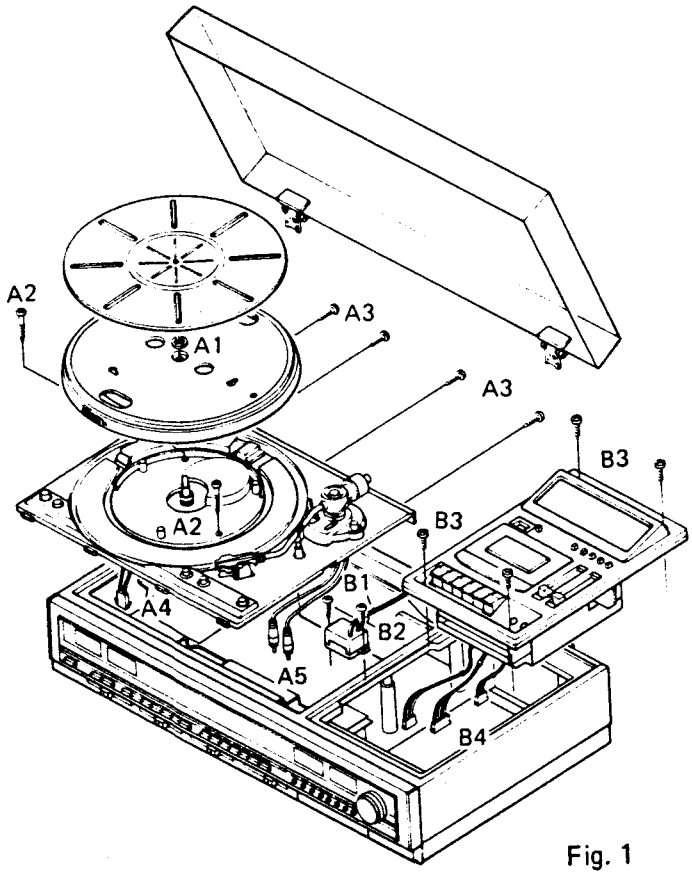


Fig. 1

C. REMOVAL OF CABINET (Fig. 2)

1. Unscrew nine screws (C1) fastening the Rear Panel.
2. Unscrew seven screws (C2) fastening the Cabinet Front Top.
3. Unscrew ten screws (C3) fastening the Cabinet Top to separate the cabinet.

NOTE: Do not unscrew three screws (C4) located in the rear of the cassette deck.

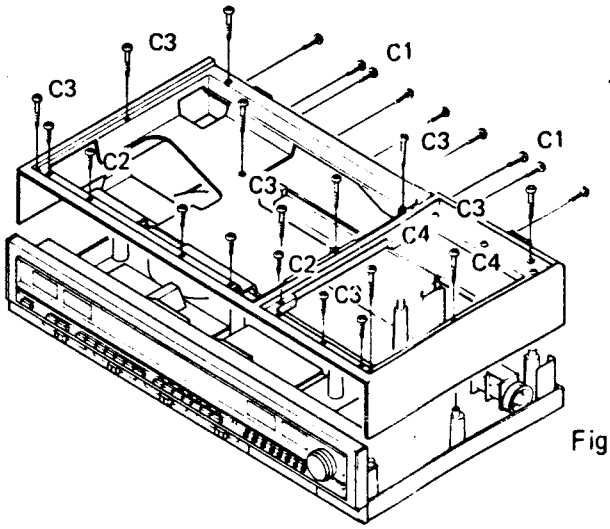


Fig. 2

D. REMOVAL OF DECORATIVE PANEL ASSEMBLY (Fig. 3)

1. Pull out the Tuning Knob (D1) from the Operation Control Panel.
2. Pull out four Slide Knobs (D2) (Volume, Balance, Treble, and Bass).
3. Unscrew five screws (D3) and seven screws (D4).
4. Disconnect each pair of black and white Connectors (D5).
5. Then, the Front Panel can be removed from the Main Unit. Avoid dusts when re-mounting the Decorative Panel Assembly. Reassemble in the reverse order.

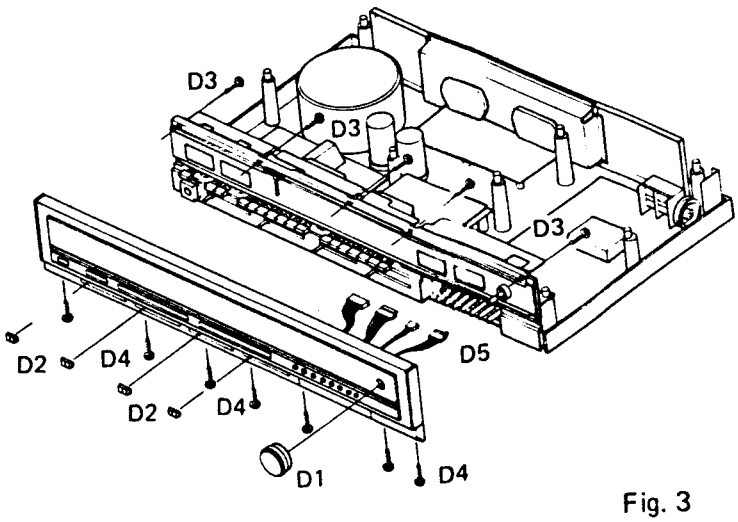
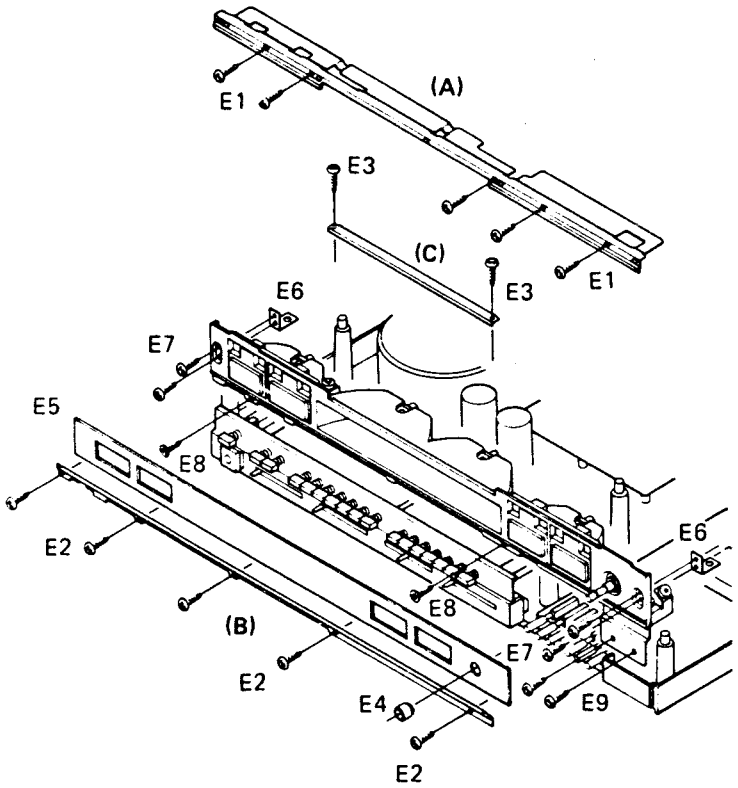


Fig. 3

DISASSEMBLY INSTRUCTIONS (Continued)

E. REMOVAL OF DIAL PLATE & LIGHT SHELTER (Fig. 4)

1. Remove the Light Shelter (A) by unscrewing five screws (E1).
2. Remove the Light Shelter (B) by unscrewing five screws (E2).
3. Remove the Dial Pointer Rail (C) by unscrewing two screws (E3).
4. Pull out the Spacer (E4) from the Tuning Shaft.
5. Peel the bilaterial adhesive tape for the attachment of the Dial Plate (E5) with a minus screwdriver. Do not apply excessive force to the Dial Plate, or it will be damaged.
6. Remove the right and left Angles (E6) by unscrewing four screws (E7).
7. Remove four screws (E8 and E9) and turn over the Shelter.



(Fig. 4)

F. REMOVAL OF METER & DIAL LAMP (Fig. 5)

1. Unsolder the Meter terminals (A) and unwrap the leads.
2. Push the Meter in the direction of the arrow to remove it.
3. Disconnect the Lamp Leads from the Power Supply P.C.B. Assembly (B) and pull out each Lamp to replace.

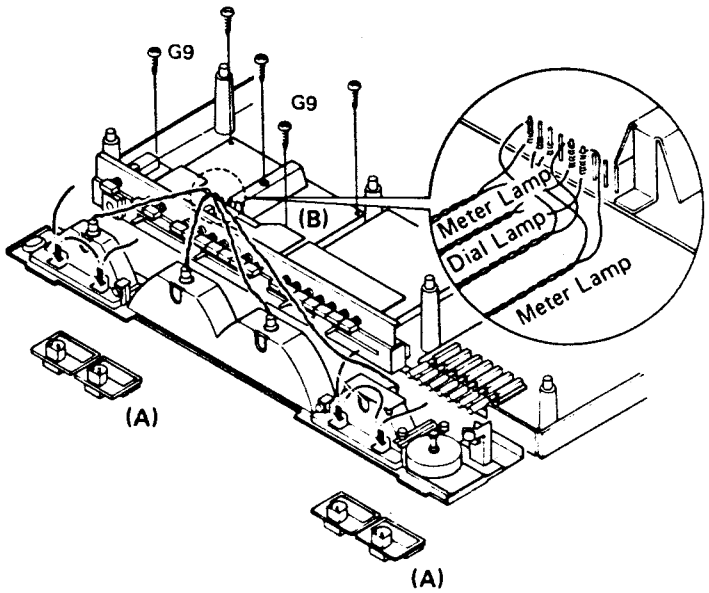


Fig. 5

G. REMOVAL OF PRINTED CIRCUIT BOARD ASSEMBLY

a) RF. IF. MPX P.C.B. & POWER AMP P.C.B. ASSEMBLY (Fig. 6)

- It is not necessary to remove these printed circuit boards because repair or adjustment work can easily be performed by removing the Protective Covers (A & B) located on the Chassis Bottom.

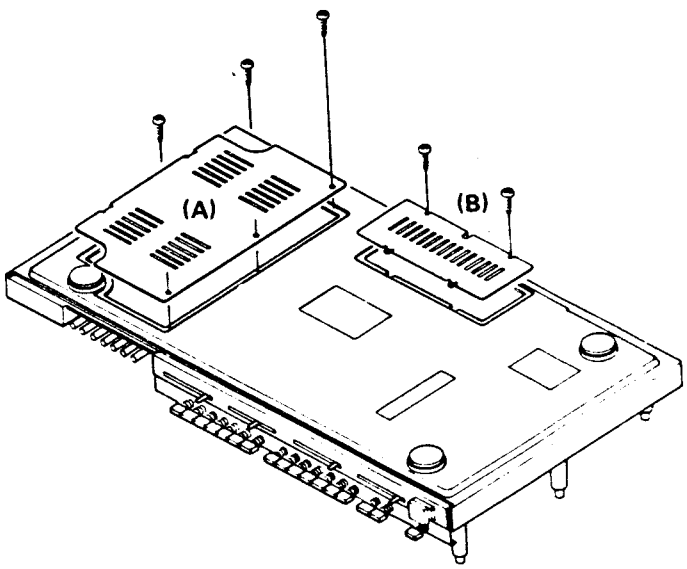


Fig. 6

DISASSEMBLY INSTRUCTIONS (Continued)

b) EQ FUNCTION P.C.B. ASSEMBLY (Fig. 7)
1. Pull out seven Knobs (G1) fastening the Function Switch.
2. Unscrew four screws (G2) and two screws (G3).
3. Disconnect all Connectors and Leads from the printed circuit board (C).

c) SWITCH P.C.B. ASSEMBLY (Fig. 7)
1. Pull out nine Switch Knobs (G4).
2. Unscrew three screws (G5) fastening the P.C.B. and four screws (G6) fastening the Switch.
3. Pull out the P.C.B. (D) and turn it over.

d) POWER SWITCH P.C.B. ASSEMBLY (Fig. 7)
1. Pull out the Power Switch Knob (G7).
2. Unscrew screws (G8) fastening the Switch.
3. Then, pull out the printed circuit board (E).

e) POWER SUPPLY P.C.B. ASSEMBLY (Fig. 5)
1. Unscrew five screws (G9) and disconnect each lead.

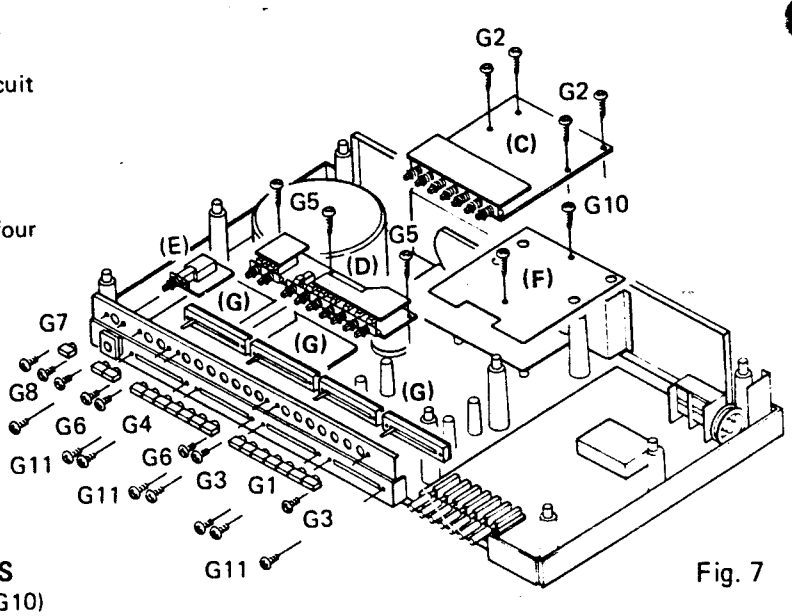
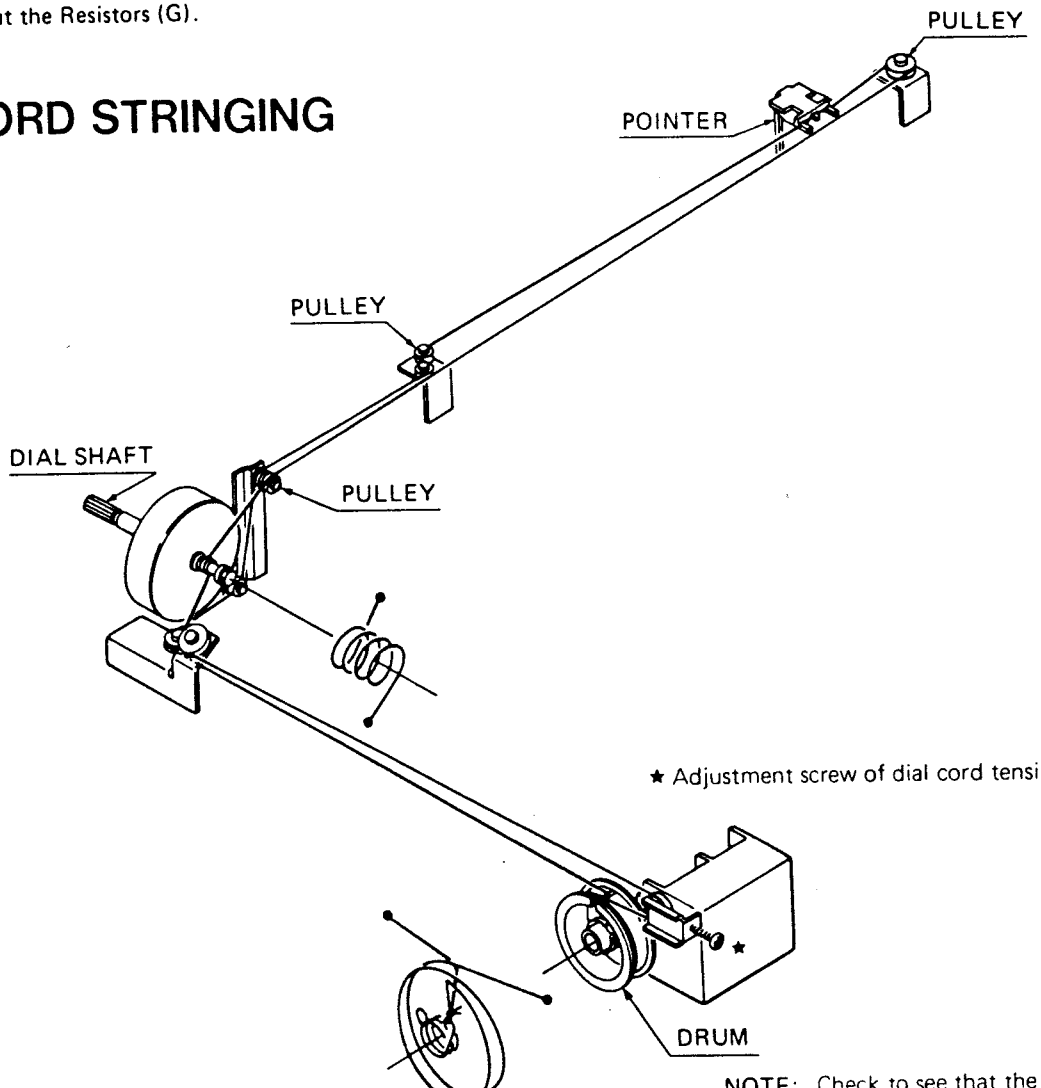


Fig. 7

H. REMOVAL OF SLIDE VARIABLE RESISTORS
1. Remove the Shield Plate by unscrewing two screws (G10) in the EQ Function P.C.B. Bottom.
2. Unscrew two screws (G11) fastening each Resistor.
3. Then, pull out the Resistors (G).

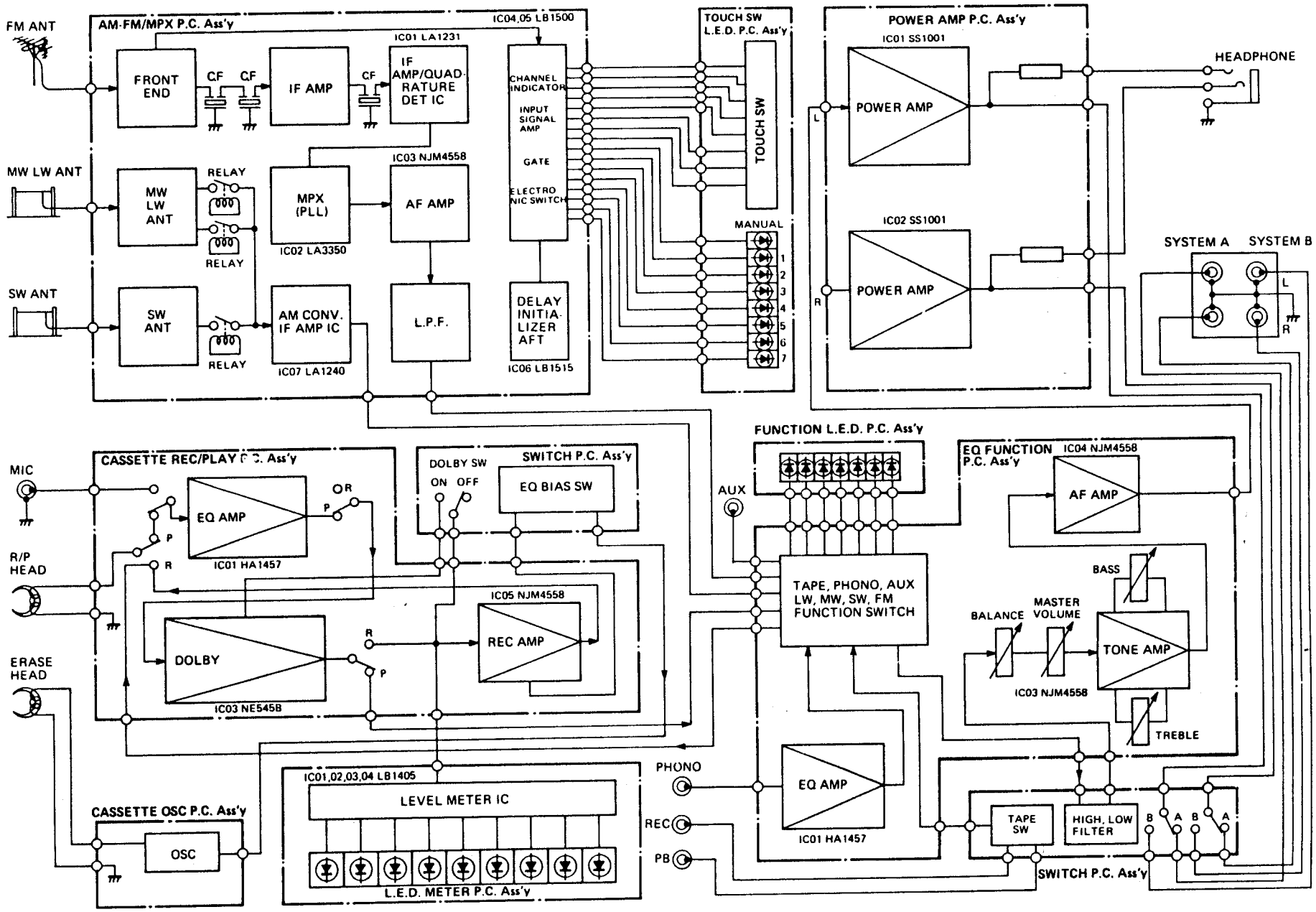
DIAL CORD STRINGING



★ Adjustment screw of dial cord tension.

NOTE: Check to see that the dial cord is correctly strung by turning the dial.

FUNCTIONAL BLOCK DIAGRAM DIAL



CASSETTE DECK ELECTRICAL ADJUSTMENTS

CLEANING AND DEMAGNITIZATION OF THE HEAD

If the tape-contacting surfaces of the parts such as the head, the capstan and the pinch roller are dirty, it results to irregular tape running, imperfect recording and erasing, tone deterioration, and the curling of the tape at the capstan.

- **Cleaning Method**

1. Remove the head cover. (Fig. 1)
2. Wipe the head, the capstan, and the pinch roller clean with a cleaning cotton swab. If they are extremely dirty, use a cotton swab moistened in absolute alcohol or cleaning liquid.
3. Insert the head cover.

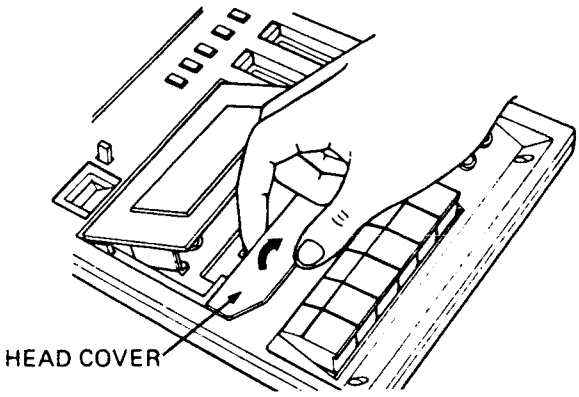


Fig. 1

Pull out the cover in the direction of the arrow.

- Head Demagnitization

The head is magnitized after long usage and it results to noise and tone deterioration. Therefore, demagnitize the head with a demagnitizer. Be sure to turn off the power source.

HEAD AZIMUTH ADJUSTMENT

1. Play back the test tape (Example: TEAC MTT-115C 10 kHz/333 Hz) to adjust the head azimuth. Observe the output wave forms of the LEFT and RIGHT channels. First of all, play back the 10 kHz signal. Turn the azimuth adjusting screw for the R/P Head until the phase of the Left and Right channels becomes identical and their output levels are maximized. Then, play back the 333 Hz signal and check to see that the phase is identical to the phase of the 10 kHz signal. If necessary, repeat the adjustment. (Fig. 2)

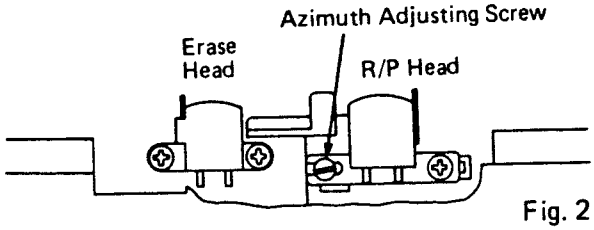


Fig. 2

L.E.D. LEVEL METER ADJUSTMENT

Set the switch to the following position.

- DOLBY NR Switch ——→ OFF

1. Apply the 400 Hz signal from the REC INPUT and set the cassette deck in the recording mode. Connect the V.T.V.M. to TP03 and TP04 in the R/P printed circuit board. Then, adjust the input with the oscillator output VR (also with the REC VR) until the voltage becomes 630 mV. (Fig. 3)

2. Turn VR01 and VR02 in the L.E.D. Level Meter printed circuit board until the ninth light emitting diode lights up. (Fig. 4)

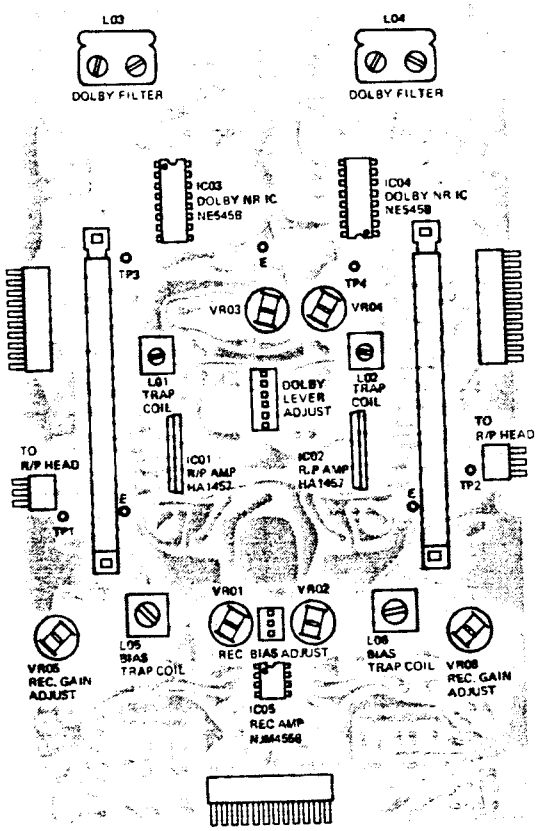
3. Keep applying the 400 Hz signal with the deck in the recording mode and decrease the input level until the voltages of TP03 and TP04 become 46 mV.

4. Turn VR03 and VR04 in the L.E.D. Level Meter printed circuit board until the first light emitting diode lights up.

5. Adjust the input level with the deck in the recording mode until the voltages of TP03 and TP04 become 580 mV. The ninth diode should be extinguished and the eighth diode should light up. Then, check to see that the eighth diode emits dim light when the voltages of TP03 and TP04 are decreased to 530 mV by the input level.

6. During the above inspection and adjustment, the light emitting diodes for the LEFT and RIGHT channels should light up or be extinguished at the same time. If not, repeat Items 1 ~ 5.

CASSETTE REC/PLAY P.C.BOARD LAYOUT



(TOP VIEW)

Fig. 3

CASSETTE DECK ELECTRICAL ADJUSTMENTS (Continued)

RECORDING BIAS ADJUSTMENT (CrO2)

Set the switches to the following positions.

- EQ Switch ——→ CrO2
- BIAS Switch ——→ CrO2
- DOLBY NR Switch ——→ OFF

1. Perform this adjustment after the Recording Bias Adjustment for Normal Tape. Set the deck in the recording mode and connect the AC V.T.V.M. across TP01 and Earth, and TP02 and Earth. Then, adjust VR01 in Muting, Plunger OSC printed circuit board, so that the bias current increases by 4 ~ 4.5 dB compared with the current on the normal tape. (Fig. 6)

NORMAL	CrO2
R Ch. 5.3 mV	8.4 mV (840 μA) ~ 8.8 mV (880 μA)
L Ch. 5.1 mV	8.2 mV (820 μA) ~ 8.5 mV (850 μA)

R/P FREQUENCY RESPONSE (Normal)

Set the switches to the following positions.

- EQ Switch ——→ NORMAL
- BIAS Switch ——→ NORMAL
- DOLBY NR Switch ——→ OFF
- TEST TAPE NORMAL ——→ TP18LHS (T308S) BASF

1. Set the deck in the recording mode and apply the 400 Hz input from the REC INPUT. Then, record the 1 kHz and 10 kHz signals attenuated by 25 dB on the basis of the input level of 580 mV, 0 dB at TP03 and TP04 (The eighth L.E.D. flashing level: DOLBY LEVEL). Play it back and observe the output level. The levels of both 1 kHz and 10 kHz frequencies should satisfy the following specified values.

   Specified Values: 1 kHz = 0 dB
   10 kHz = +0.5 dB±0.5 dB

2. If the above specified values are not obtained, increase or decrease the bias current with VR01 and VR02 in R/P printed circuit board and repeat the above adjustment. (The bias variable range should be 350 μA ~ 650 μA.)

3. If the bias current is changed, perform the adjustment until the output voltages of TP03 and TP04 become 580 mV.

R/P FREQUENCY RESPONSE (CrO2)

Set the switches to the following positions.

- EQ Switch ——→ CrO2
- BIAS Switch ——→ CrO2
- DOLBY NR Switch ——→ OFF
- TEST TAPE CrO2 ——→ TP18CrO2 (C401R) BASF

1. Set the deck in the recording mode and record the 1 kHz, 100 Hz, and 10 kHz signals attenuated by 25 dB on the basis of the input level (DOLBY LEVEL) in the described order. Then, play them back to confirm that each frequency response satisfies the following specified value.

   Specified Value: −3 dB, 100 Hz ~ 10 kHz (1 kHz: 0 dB)

R/P FREQUENCY RESPONSE (FeCr)

Set the switches to the following positions.

- EQ Switch ——→ FeCr
- BIAS Switch ——→ NORMAL
- DOLBY NR Switch ——→ OFF
- TEST TAPE FeCr ——→ C60 DUAD (SONY)

1. Set the deck in the recording mode and record the 1 kHz, 100 Hz, and 10 kHz signals attenuated by 25 dB on the basis of the input level (DOLBY LEVEL) in the described order. Then, play them back to confirm that each frequency response satisfies the following specified value.

   Specified Value: −3 dB, 100 Hz ~ 10 kHz (1 kHz: 0 dB)

DOLBY NOISE REDUCTION EFFECT MEASUREMENT

- AC VOLTMETER ——→ MODEL M-177 (made by NF)
- METER SETTING
  - WEIGHT ——→ CCIR/ARM.
  - RANGE ——→ AUTO.
  - SENSITIVITY ——→ CAL.
- TEST TAPE NORMAL ——→ TP18LHS (T308S) BASF

1. Set the REC INPUT of the deck in no-signal mode.

2. Set the DOLBY NR Switch to 'OFF", and the tape counter to '000". Set the deck in the recording mode at no-signal and turn on the DOLBY NR Switch when the tape counter reads '010". Continued recording until the tape counter reads '020".

3. Rewind the tape until the tape counter reads "000" and observe the tape output. Then, play back the tape and read the noise level (A) through the hearing correcting filter.

4. When the tape has reached the place recorded with the DOLBY NR Switch set to "ON" (namely, when the tape counter reads "010"), read the noise level (B) keeping the DOLBY NR Switch "ON".

5. Check the difference between each level obtained in Item 3 and Item 4. The difference should be more than 4.5 dB.

   Noise Level (A) − Noise Level (B) = more than 8.5 dB

CASSETTE DECK MECHANICAL ADJUSTMENTS

REQUIRED EQUIPMENTS

- Spring Gauge (500g maximum)
- Cassette-type Torque Meter (100g maximum)
- Thickness Gauge
- Silicone Grease (Example: SHIN-ETSU SILICONE KS-64)
- Paint or Glue

GENERAL REMARKS

- Before adjusting the mechanism of the unit, clean the tape contacting surfaces with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains.

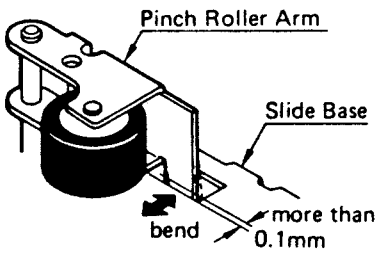
- The Belts must be kept clean while the adjustments are performed.
  * Silicone grease (Example: SHIN-ETSU SILICONE KS-64) is applied to the Drive Belt and the Take-up Belt to protect them from abrasion.
    If the grease lacks, apply a proper amount of silicone grease (Example: SHIN-ETSU SILICONE KS-64) to each groove of the Flywheel and Friction assemblies.

  NOTE:
  Silicone grease is not applied to the Replacement Parts.

- Never apply grease or oil to the ASO Belt. If applied, wipe it clean with benzine.

PINCH ROLLER ADJUSTMENT

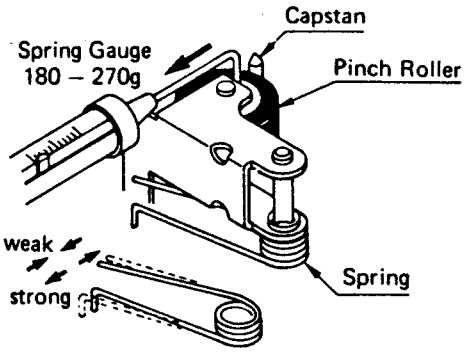
1. Set the unit in the playback mode and check to see that the clearance between the Pinch Roller Arm and the Slide Base is more than 0.1mm and, that the Take-up Reel Gear rotates before the Pinch Roller starts rotating as the PLAY button is gradually pressed.
   * If necessary, adjust the clearance by carefully bending the Pinch Roller Arm as illustated.
     Do not excessively bend it.



2. Measure the pinch roller pressure with a Spring gauge (500g) with the unit in the playback mode as follows:
   * Hook the Spring gauge to the Pinch Roller as illustrated and pull it away from the Capstan.
     Then, slowly bring the Pinch Roller close to the Capstan.

   * Measure the pressure the moment the Pinch Roller comes in contact with the Capstan and starts rotating. It should be 180 – 270g.

   * If necessary, change the pressure by bending the Spring or replace the Spring with a new one.

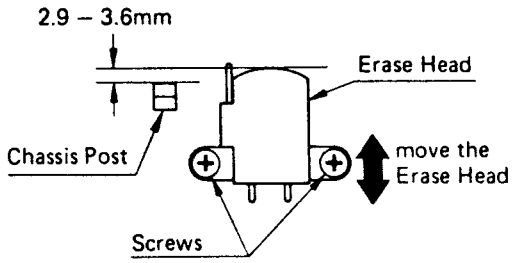


3. Check the Pinch Roller. If it has a defective rubber surface, replace it with a new one.

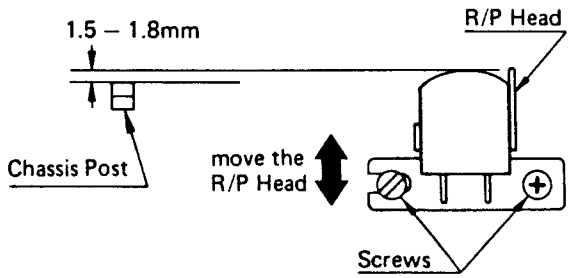
HEAD POSITION ADJUSTMENT

After a head has been removed or replaced, adjust the head position by the following procedures.

1. The distance between the Erase Head and the chassis posts should be 2.9 – 3.6mm with the unit in the playback mode.
   * If necessary, loosen the screws fastening the Erase Head and move the head as illustrated.



2. With the REWIND of F.F. button pressed down in the playback mode, the distance between the R/P Head and the Chassis posts should be 1.5 – 1.8mm.
   * If necessary, loosen the screws fastening the R/P Head and adjust the head position.



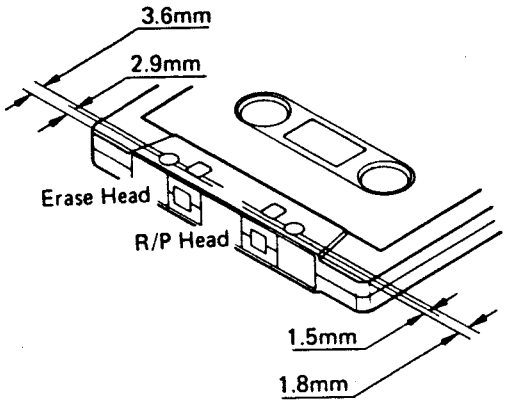
3. After the adjustment, tighten the screw and secure it with paint or glue.

CASSETTE DECK MECHANICAL ADJUSTMENTS (Continued)

NOTE:

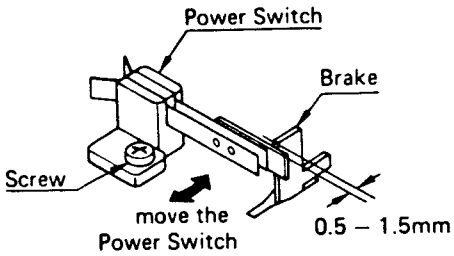
A. Apply paint or glue to the azimuth adjusting screw only after the azimuth adjustment.

B. A cassette with the specified pin-head distances marked on it as shown can be used as a facilitating gauge for the Head Position Adjustment. (Do not use a worn cassette.)



POWER SWITCH POSITION ADJUSTMENT

1. Set the unit in the stop mode and check to see that the clearance between the Power Switch and the Brake is 0.5 – 1.5mm as illustrated.

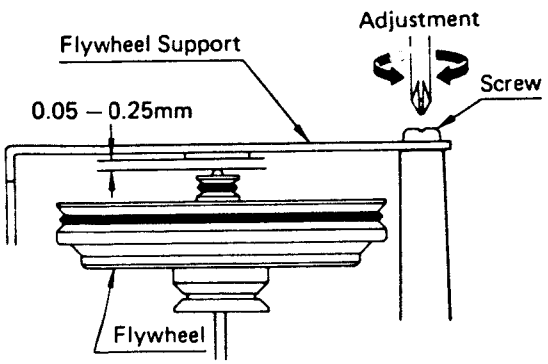


2. If necessary, loosen the screw fastening the Power Switch and shift the Switch to the specified position.

3. After the adjustment, tighten the screw and secure it with paint or glue.

FLYWHEEL SUPPORT ADJUSTMENT

1. Turn over the unit and check to see that the clearance between the Flywheel Support and the Flywheel is 0.05 – 0.25mm as illustrated.

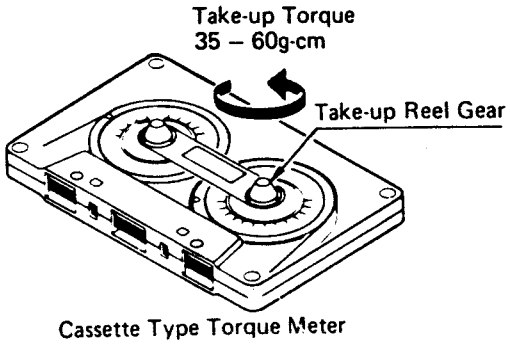


2. If necessary, adjust the clearance by tightening the screw fastening the Flywheel Support.

3. After the adjustment, secure the screw with bonding material.

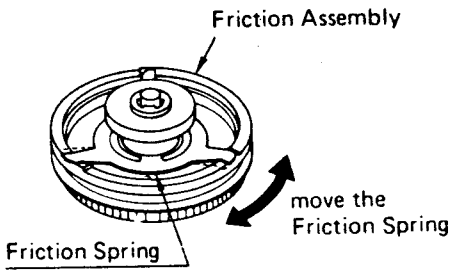
TAKE-UP TORQUE ADJUSTMENT

1. Insert the cassette-type torque meter into the unit and measure the torque of the Take-up Reel Gear with the unit in the playback mode. It should be 30 – 50g-cm.



Cassette Type Torque Meter

2. If necessary, adjust the torque by moving the Friction Spring of the Friction Assembly as illustrated.

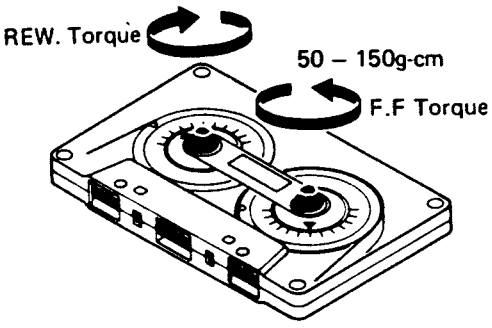


NOTE:

If the Take-up Reel Gear and the Take-up Gear run idle and produce an abnormal sound, adjust the take-up torque as low as possible.

FAST FORWARD & REWIND TORQUE

1. The fast forward and rewind torque value measured by cassette-type torque meter should be 55 – 90g-cm.



Cassette Type Torque Meter

NOTE:

Read the torque values on the torque meter just before the unit automatically shuts off.

2. If the torque value is more than 90g-cm, apply a proper amount of silicone grease (Example: SHIN-ETSU SILICONE KS-64) to the groove of the Friction Assembly.

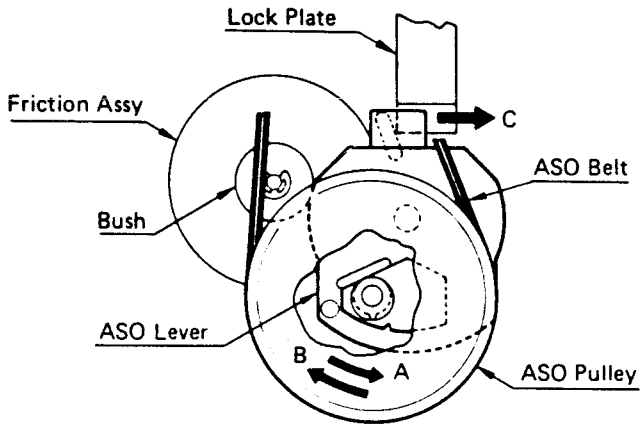
3. If the torque value is less than 55g-cm, replace the Take-up Belt with a new one.

CASSETTE DECK MECHANICAL ADJUSTMENTS (Continued)

AUTO SHUT-OFF MECHANISM

FUNCTION

1. Silicone grease (Example: SHIN-ETSU SILICONE KS-64) is applied to the contacting surfaces of the Bush and the ASO Lever, and the tooth of the ASO Lever to make the Auto Shut-off mechanism function smoothly.
   If the grease lacks, apply a proper amount of silicone grease to them.
2. The ASO Lever is ordinarily pressed to the Bush of the Friction Assembly by the spring and moves in the direction of arrow A in accordance with the bush rotation.
3. The shaft of the ASO Pulley is elliptical in shape like a cam as illustrated and moves the ASO Lever in the direction of arrow B according to the rotation of the ASO Pulley.
4. Each tooth of the ASO Pulley and ASO Lever does not mesh each other and the shaft moves the ASO Lever back and forth by the above described movements (A and B).
5. When the tape is completely wound to the end, the bush rotation stops, so that the ASO Lever is moved in the direction of arrow B by the ASO Pulley and it stops moving.
6. While the ASO Pulley is rotating, its tooth is engaged with the tooth of the ASO Lever and it moves the ASO Lever in the direction of arrow C.
7. Then, the ASO Lever pushes the Lock Plate in the direction of arrow C, so that the unit is set in the stop mode.



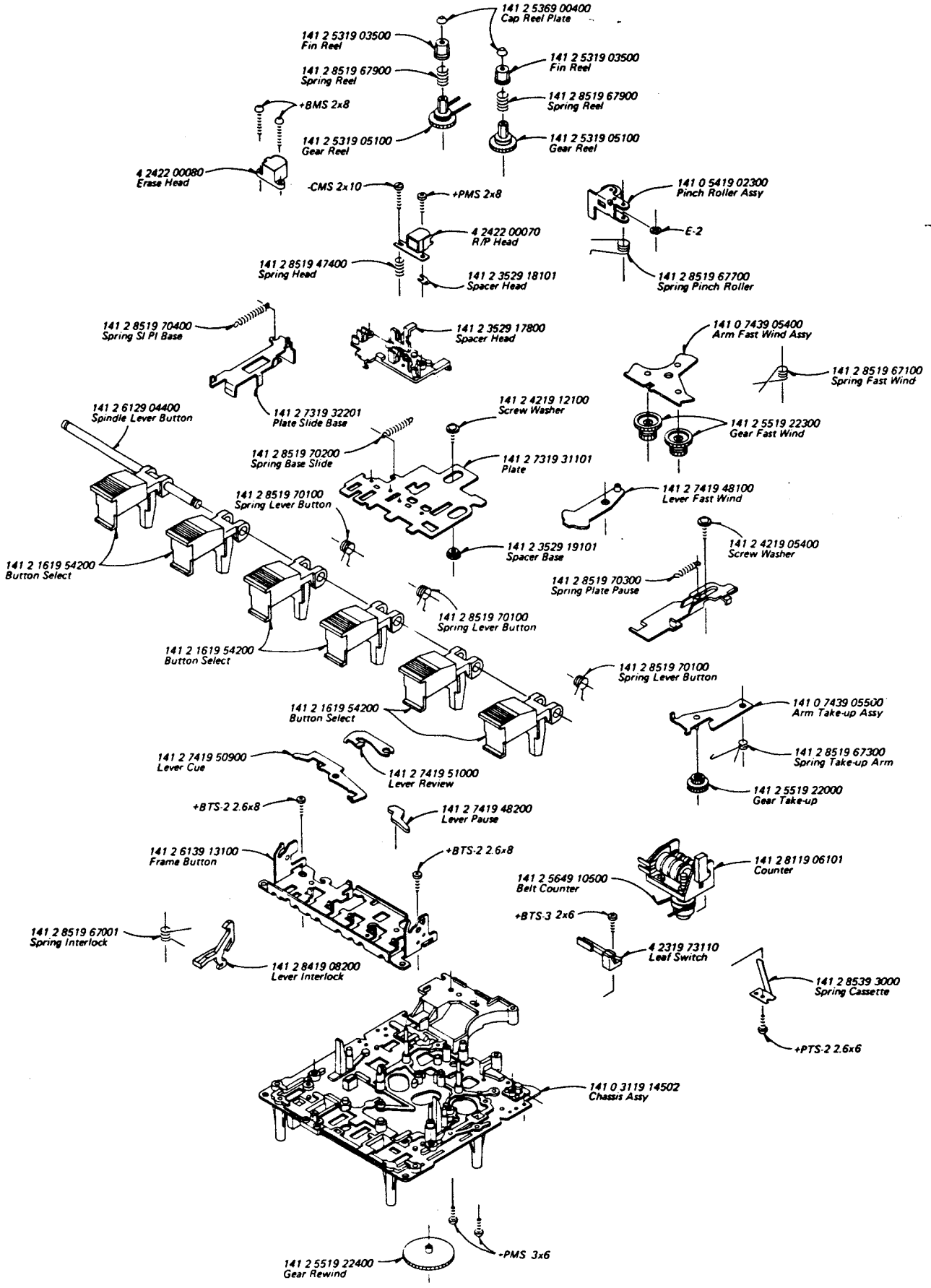
If the Auto Shut-off mechanism has a trouble, repair it referring to the following troubleshooting.

SYMPTOM	POSSIBLE CAUSE		REMEDY
ASO mechanism does not work properly.	ASO Spring is unhooked		Repair.
	Grease is not applied enough to the circumference of the Bush or is not applied at all.		Apply grease.
	ASO Lever does not move properly.	Shaft of ASO Lever is clogged by grease or dusts.	Remove grease or dusts by wiping Shaft of ASO Lever with alcohol.
ASO mechanism does not work at all.	ASO Lever is in contact with Take-up Pulley of Friction Assembly.		Insert the washer below the E ring of the Bush and keep the clearance between the E ring and the Bush less than 0.5mm.
	ASO Belt is worn out.		Replace ASO Belt.
	ASO Belt is stained.		Wipe ASO Belt with benzine.

NOTE:
Although there is a case that the button is not locked by pressing one of the Select Buttons (PLAY, FF, or REW) without Power supplied to the unit after the unit has automatically shut off, this symptom is not a trouble.

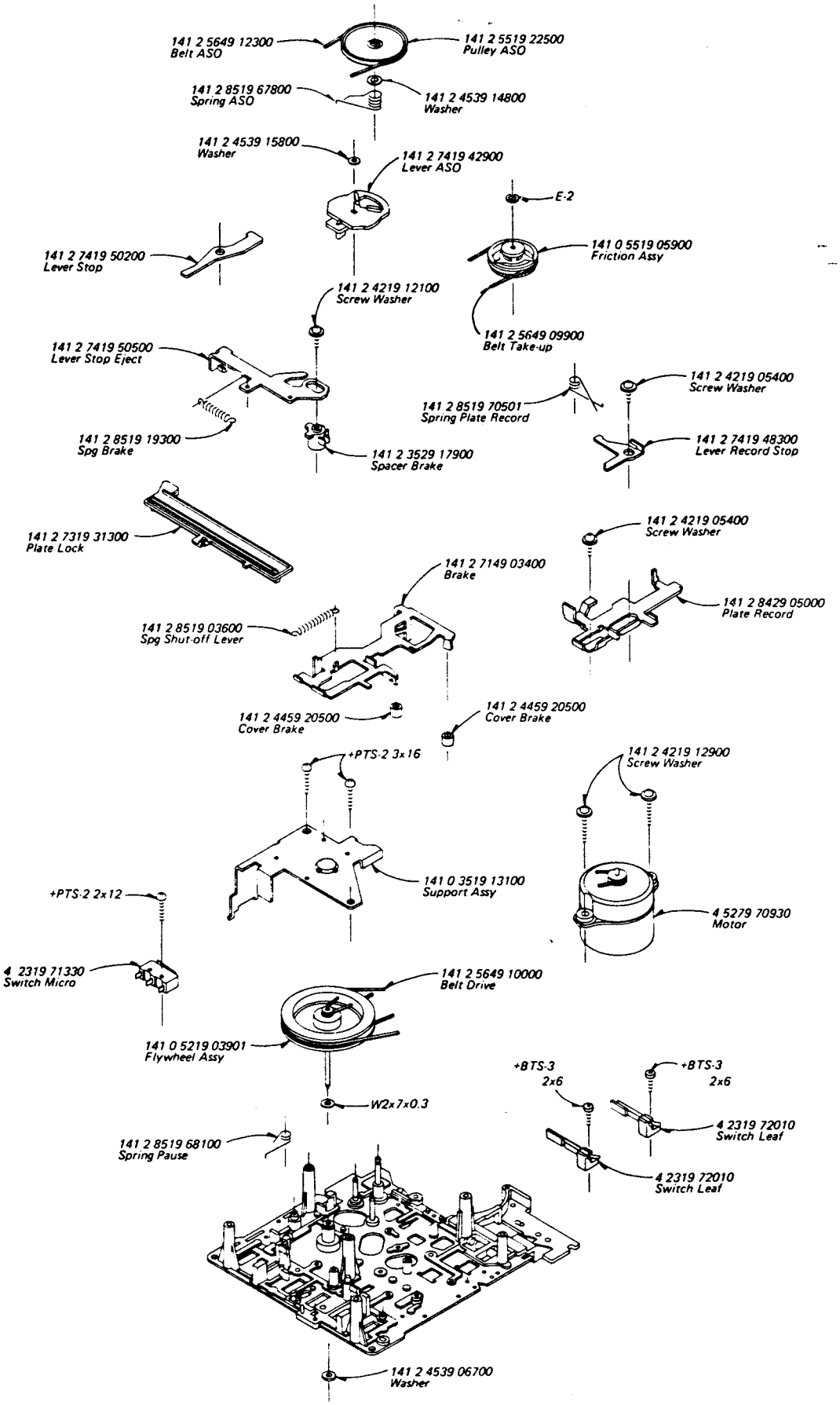
CASSETTE DECK EXPLODED VIEW

(TOP VIEW)

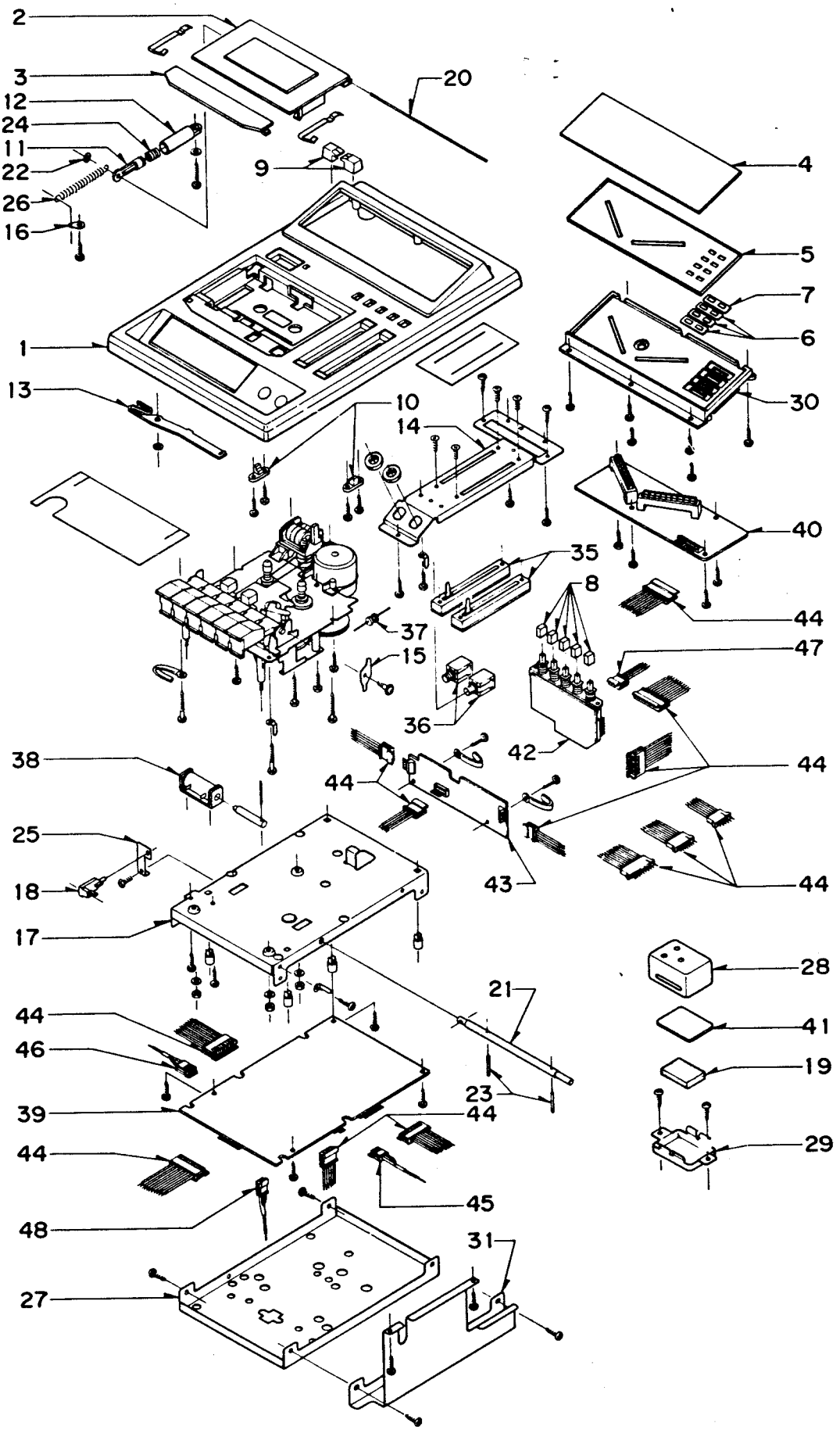


CASSETTE DECK EXPLODED VIEW (Continued)

(BOTTOM VIEW)



CASSETTE DECK EXPLODED VIEW



PARTS LIST

MECHANICAL PARTS LIST

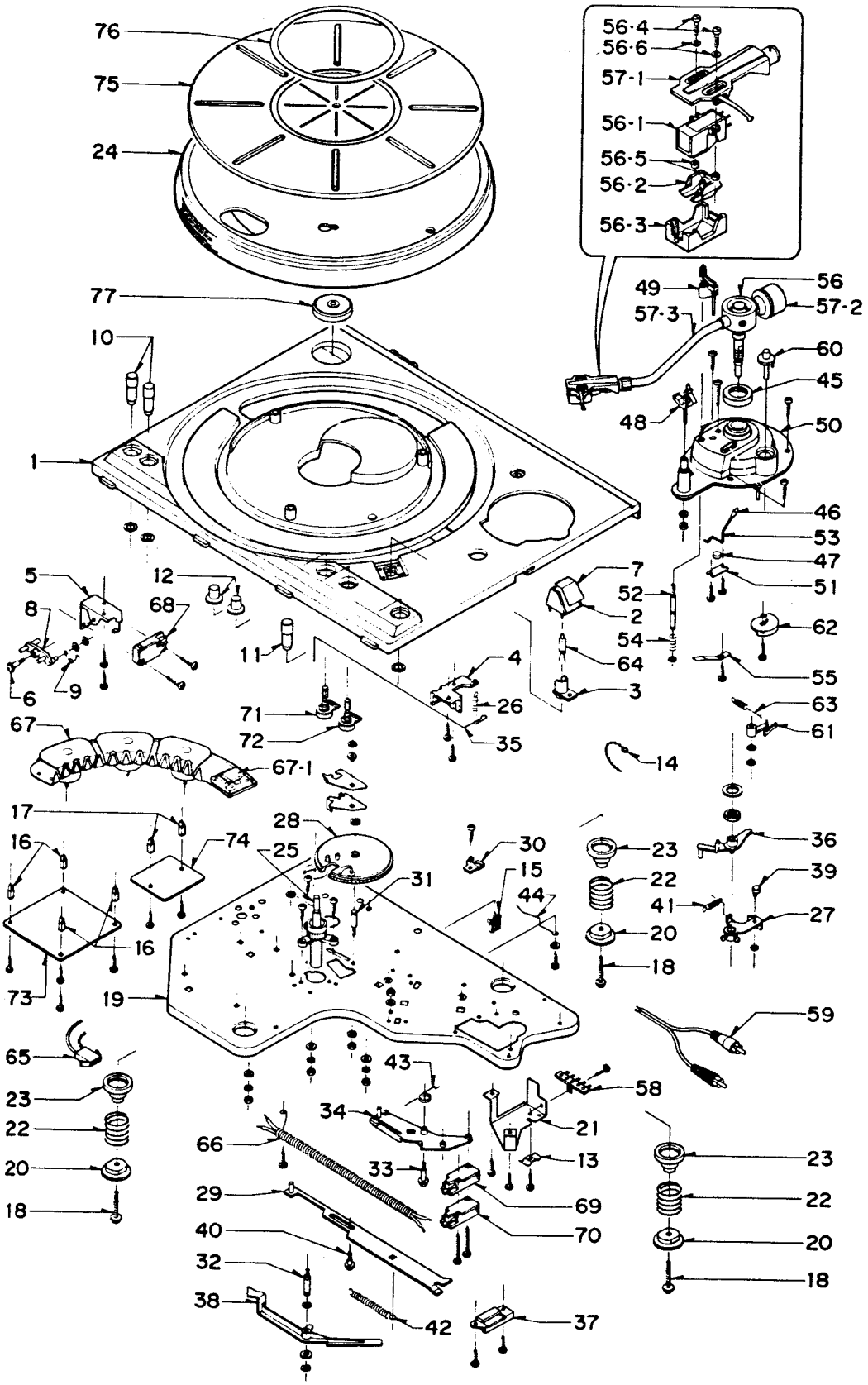
Ref. No.		Parts Number	Description
		14 18810	Cassette Deck Unit
1		131 2 1207 11300	Housing
2		131 0 2022 90190	Lid Assy
		131 2 1107 21100	Lid
		131 2 1110 24100	Plate Decorate
		131 2 5101 16000	Spring
3		131 0 1021 90030	Head Cover Assy
		131 2 1410 20500	Cover
		131 2 1110 24200	Plate Decorate
4		131 2 1205 20500	Decorate Plate Dial
5		131 2 1110 24000	Plate Decorate
6		131 2 1503 13600	Decorate Sign (Orange)
7		131 2 1503 13601	Decorate Sign (Red)
8		131 2 1601 54600	Knob (Push Switch)
9		131 2 1601 54700	Knob (Slide VR)
10		131 2 2106 10200	Support Shaft Door
11		131 2 2307 11000	Slide (Piston)
12		131 2 2307 11100	Slide (Cylinder)
13		131 2 2905 10300	Ratch
14	*	131 2 3101 57800	Metal Mount (VR, SW, Jack)
15	*	131 2 3101 57900	Metal Mount (Deck, Eject)
16	*	131 2 3101 58000	Metal Mount (Spring)
17	*	131 2 3301 24600	Chassis (Rec P.C.B.)
18		131 2 4208 29100	Spacer (Rec Slide SW)
19		131 2 4208 29900	Spacer (OSC)
20		131 2 4219 13000	Shaft (Cassette Lid)
21		131 2 4219 13100	Shaft (Chassis)
22		131 2 4220 10502	Ring Snap
23		131 2 4222 00100	Pin Spring
24		131 2 5101 15800	Spring (Piston)
25		131 2 5101 15900	Spring (Shaft)
26		131 2 5101 16100	Spring (Lid)
27	*	131 2 6103 17400	Cover Shield
28	*	131 2 6103 17500	Cover Shield (OSC)
29	*	131 2 6103 17600	Cover Shield (OSC)
30	*	131 2 6113 32400	Shelter
31	*	131 2 6103 17900	Cover Shield

ELECTRICAL PARTS LIST

Ref. No.		Parts Number	Description
35		4 2222 00480	Slide VR 100K-B
36		4 2352 00120	Microphone Jack
37		4 2539 20440	RF Filter 100 mH (Motor Line)
38		4 2642 00010	Plunger (Memory Stop)
C01		C1CRE-107A	Electrolytic 100 μF 16V
R01 02		R2EDUJ681A	Carbon 680 1/4W ±5%
39	*	131 0 4001 00930	Cassette R/P P.C.B. Assy
40	*	131 0 4001 00940	L.E.D. Meter P.C.B. Assy
41	*	131 0 4001 00950	Cassette OSC P.C.B. Assy
42	*	131 0 4001 00960	Switch P.C.B. Assy
43	*	131 0 4001 00970	Muting Plunger P.C.B. Assy
44	*	131 0 4006 19100	Cord Assy
45	*	131 0 4006 19200	Cord Assy 3P
46	*	131 0 4006 19201	Cord Assy 3P
47	*	131 0 4006 19400	Cord Assy 4P
48	*	131 0 4006 19600	Cord Assy 3P

*—Not a service part.

TURNTABLE EXPLODED VIEW



CAUTION:

The rotor magnet of the linear motor is located inside the turntable. It is a ring-shaped magnet which is magnitized to 120 poles.

An irregular rotation may occur if metallic dust such as iron dust sticks to the magnet.

If dust sticks to the magnet, remove the E-rings and wipe it with a soft cloth soaked in water and wrung out.

TURNTABLE ADJUSTMENT

Although the adjustments below are performed at the factory, be sure to recheck each adjustment whenever the printed circuit boards and parts are removed and repaired.

1. ROTATION ADJUSTMENT

A. Place the unit horizontally and set the pitch control knobs (VR01,02 50K) to their mechanical center positions.

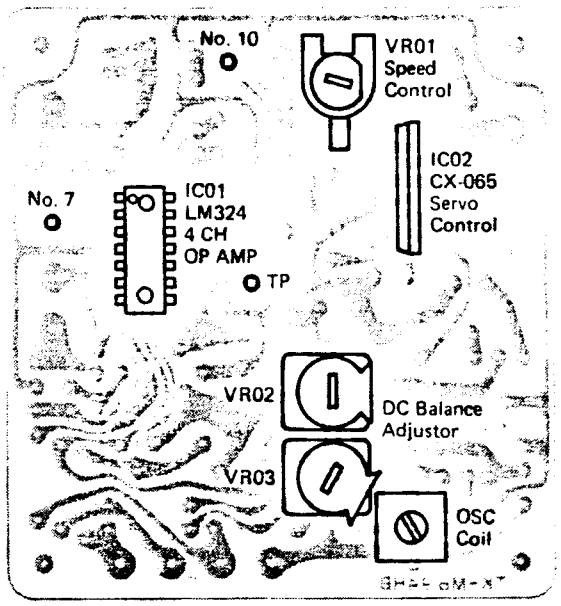
B. Set the speed selector to 33 or 45 rpm and adjust VR01 (100K-B) for zero deviation by observing the stroboscope.

2. DC BALANCE ADJUSTMENT

A. Remove the turntable. (The unit can be placed vertically.)

B. Connect a DC VTVM between test points and terminal No. 10, and subsequently between test point and terminal No. 7. Adjust first VR03 and then VR02 for minimum DC voltage, the value measured should be less than 10 mV DC when simultaneously measured with two DC VTVM. (Fig. 1)

MOTOR P.C.BOARD LAYOUT



(TOP VIEW) Fig. 1

3. TONEARM LEVER ADJUSTMENT

Set the turntable unit upside down after putting the tonearm on the arm rest and securing it.

Then, loosen the set screw and position the lever (Ref. No. 27) in such a way that the protrusion of the microswitch contacts the foremost end of the lever.

After that, perform the fine adjustment by turning the adjust screw. (Fig. 2)

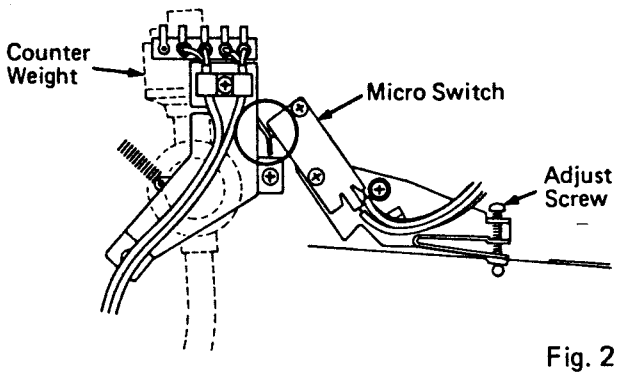


Fig. 2

4. AUTO-RETURN ADJUSTMENT

There is a cam (Ref. No. 39) which is accessible with an ordinary screwdriver through the hole below the tonearm. Turn the cam clockwise or counterclockwise and select a position where it actuates the auto-return. (Fig. 3)

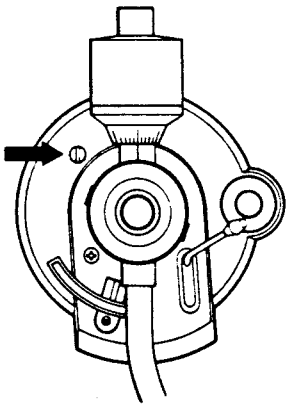


Fig. 3

5. TONEARM LIFTER ADJUSTMENT

Set the cuing lever to UP and the distance between the stylus and the disk to about 9mm by adjusting the adjusting spindle lifter (Ref. No. 52). (Fig. 4)

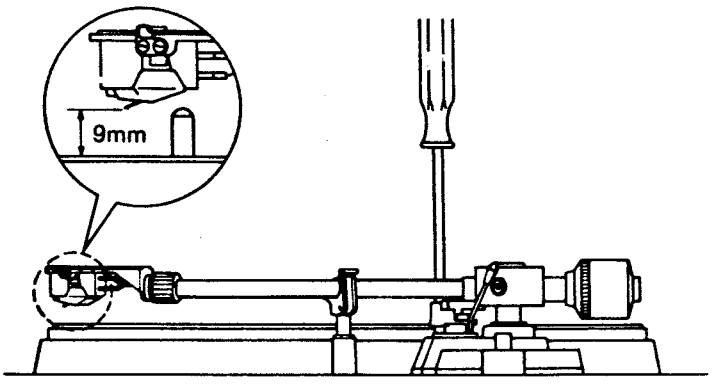


Fig. 4

PARTS LIST

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	134 2 2101 13300	Unit Plate (Player Board)
2	134 2 1101 11101	Case
3	134 2 2106 10800	Holder
4	134 2 2403 20500	Angle Mount (Rejector)
5	134 2 2403 20600	Angle Mount (Speed)
6	134 2 4106 21800	Shaft
7	134 2 4108 22900	Plate
8	134 2 4123 18600	Arm
9	134 2 5101 28900	Spring
10	131 0 1001 50000	Knob (Speed Select)
11	131 0 1001 50000	Knob (Reject)
12	131 0 1001 50100	Knob (Pitch Control)
*	131 2 4220 10504	Snap Ring 8mm 10 – 2, 11 – 1
*	131 2 4220 10502	Snap Ring 3mm 2 – 2, 9 – 1
*	131 2 4201 19502	Screw (Screw, Button Head Tapping B-TIPE 3) 4 – 2, 5 – 2
*	131 2 4203 83200	Washer, Plain 3.2x8x0.5 8 – 1

TURNTABLE PARTS LIST

Ref. No.	Parts Number	Description
13*	131 2 3608 10300	Cramp Wire
14*	131 2 3608 11301	Cramp Wire
15*	131 2 3608 11700	Cramp Wire
16*	131 2 3614 17101	Mount P.C.B.
17*	131 2 3614 20800	Mount P.C.B.
18*	131 2 4201 21800	Screw
19	134 2 2101 13400	Unit Plate
20	134 2 2106 11300	Holder
21	134 2 2403 18100	Angle Mount
22	134 2 5102 14000	Spring Mounting
23	134 2 5205 13100	Cushion
*	102 3 2203 00802	Screw, Button Head Tapping 3.0x8 13 – 1
*	102 3 2203 00601	Screw, Button Head Tapping 3.0x 6 21 – 2
*	102 3 2203 01202	Screw, Button Head Tapping 3.0x12 16 – 4
*	102 3 2203 01602	Screw, Button Head Tapping 3.0x16 17 – 2
24	134 0 5001 12900	Turntable Assy
25	134 0 9902 11602	Assembly Plan
*	108 3 1106 00004	Ring E 6.0 25 – 1
*	131 2 4201 13502	Screw (Taptite) 3x8 25 – 3
26	134 2 5101 30400	Spring (Reject)
27	134 0 6022 12201	Plate PU Fix Assy
28	134 0 6030 11301	Gear Cycling Assy
29	134 0 6035 11500	Return Arm Assy
30	134 2 2106 11100	Holder (Rod)
31	134 2 4106 19900	Shaft (Drive Gear)
32	134 2 4106 20000	Shaft (Return Arm)
33	134 2 4106 22200	Shaft (Switch Plate)
34	134 2 4108 21000	Plate (Switch)
35	134 2 4112 00900	Rod (Reject)
36	134 2 4120 17100	Lever (Pick-up)
37	134 2 4121 11800	Guide (Return Arm)
38	134 2 4123 16100	Arm (Return Arm)
39	134 2 4124 11300	Cam (Return Adjust)
40	134 2 4201 13000	Screw 3mm
41	134 2 5101 20500	Spring (Pick-up)
42	134 2 5101 24600	Spring (Return Arm)
43	134 2 5101 26400	Spring (Switch Plate)
44	134 2 5101 28600	Spring (Trip Return)
*	104 3 1203 00002	Nut, Hex Head 2 3.0 31 – 1, 32 – 1
*	108 3 1104 00000	Ring E 4.0 31 – 1
*	108 3 1103 00007	Ring E 3.0 32 – 2
*	131 2 4220 10401	Ring Snap 3 39 – 1
*	102 3 1203 00603	Screw, Pan Head Tapping 3.0x6 37 – 2, 30 – 1, 44 – 1
*	101 3 1103 00603	Screw, Pan Head 3.0x6 27 – 2
*	131 2 4201 13511	Screw (Taptite) 3x14 34 – 1
*	105 3 1203 00002	Washer, Spring 3.0 31 – 1, 32 – 1
*	131 2 4203 84700	Washer 32 – 1
45	131 2 1407 10800	Cover Decorate
46	131 2 1601 37500	Knob (Cueing Lever)
47	131 2 2904 11500	Pad Lid
48	134 0 6031 11700	Armrest Assy
49	134 0 6042 10603	Plate Lifting Assy
50	134 2 3201 12300	Base Pick-up
51	134 2 4108 23900	Plate
52	134 2 4116 13000	Spindle Lifting
53	134 2 4120 18100	Lever (Cueing)
54	134 2 5101 28300	Spring
55	134 2 5103 10600	Spring Plate
*	104 3 1102 60000	Nut, Hex Head 2.6 48 – 1
*	108 3 1103 00000	Ring E 3.0 52 – 1
*	131 2 4201 19500	Screw (Screw, Button Head Tapping B-TIPE 3) 51 – 2
*	131 2 4201 19502	Screw (Screw, Button Head Tapping B-TITE 3) 55 – 1
*	102 3 1203 01006	Screw, Pan Head Tapping 3.0x10 50 – 3
*	102 3 1203 01215	Screw, Pan Head Tapping 3.0x12 49 – 1
*	105 3 1202 60003	Washer, Spring 2.6 48 – 1
56	4 1579 21240	Pick-up Assy
56-1	4 1579 26690	Cartridge (MG-35V)
56-2	4 1579 29210	Pick-up Stylus (ST-35VD)
56-3	134 2 1402 11500	Retainer Needle
56-4	134 2 4201 11309	Screw
56-5	134 2 4202 11301	Nut
56-6	134 2 4203 01800	Washer
57	134 0 4001 07400	Tone Arm Assy
57-1	134 0 4002 10402	Arm Head Assy
57-2	134 0 4003 00203	Weight Assy
57-3	134 0 4004 00703	Arm Assy

PARTS LIST (Continued)

Ref. No.	Parts Number	Description
58	4 2372 00490	Terminal Lug 4P
59	131 0 4004 15500	Wire Shield Assy
60	134 0 1001 12900	Knob (I.F.C. Knob)
61	134 2 4123 18700	Arm (I.F.C.)
62	134 2 4124 11700	Cam (I.F.C.)
63	134 2 5101 29400	Spring (I.F.C.)
*	131 2 4220 10502	Ring Snap 61 – 1
*	102 3 1202 60602	Screw, Pan Head Tapping 2.6x6 60 – 1
*	102 3 1203 00603	Screw, Pan Head Tapping 3.0x6 58 – 1
64	4 6129 20794	Neon Lamp
65	131 0 4006 20100	Cord Assy
66	131 2 6103 17700	Shield Cover
67	134 0 5011 00701	Motor Assy (Linear Motor)
67-1	134 0 5012 00103	Sensor Assy
*	131 2 4202 12700	Nut 67 – 3
*	101 3 1103 01201	Screw, Pan Head 3.0x12 67 – 1
*	131 2 4201 20201	Screw M3x12 67 – 1
68	4 2319 21994	Micro Switch (Speed)
69	4 2319 21994	Micro Switch (Neon)
70	4 2319 21994	Micro Switch (Motor)
*	104 3 1104 00003	Nut, Hex Head 4.0 67 – 3
*	102 3 1203 01404	Screw, Pan Head Tapping 3.0x14 68 – 2
*	131 2 4201 19507	Screw (Screw Button Head Tapping B-TITE 3) 69 – 2
*	102 3 2203 00601	Screw, Button Head Tapping 3.0x6 66 – 1
*	134 2 4208 15000	Spacer 67 – 3
*	131 2 4203 84500	Washer, Plain 4.5x10x0.8 67 – 3
*	105 3 1204 00001	Washer, Spring 4.0 67 – 3
71(VR01)	4 2222 00340	VR 50k-B (33 RPM Speed Adjust)
72(VR02)	4 2222 00340	VR 50k-B (45 RPM Speed Adjust)
73	131 0 4001 00470	Motor P.C.B. Assy
74	131 0 4001 01020	Power Supply P.C.B. Assy
75	134 2 6102 13500	Turntable Mat
76	134 2 6103 11201	Decorative Turntable Plate
77	134 2 2901 10502	Adapter EP

MOTOR P.C.B. Assy
131 0 4001 00470

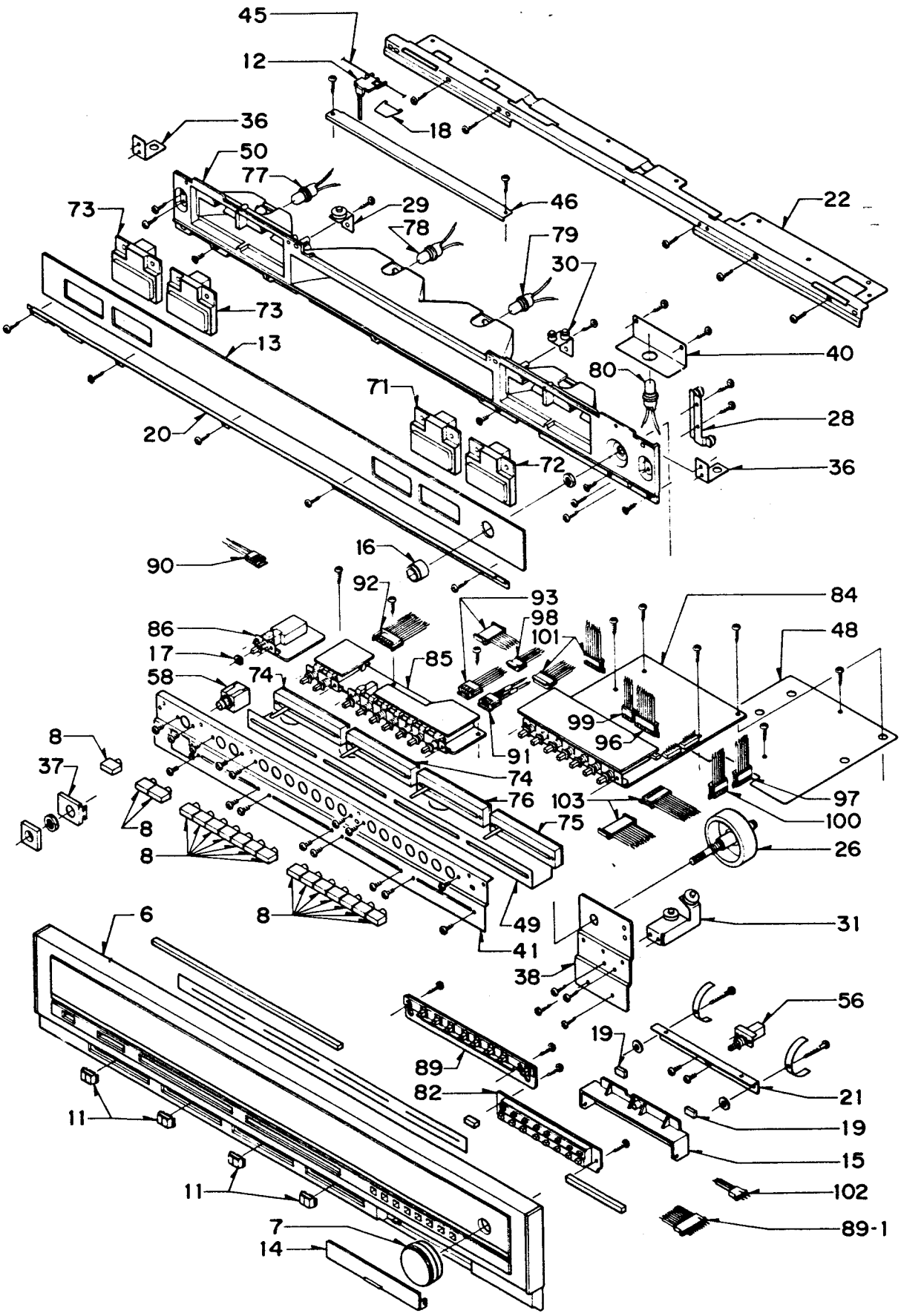
Ref. No.	Parts Number	Description
	4 2589 20900	OSC Coil
VR01	4 2229 26150	VR 200k-B
VR02,03	4 2229 26070	VR 200
	CAPACITORS	
C01	C1HCYK101APA	Ceramic 100 pF 50V ±10%
C02	C1ARY-336APA	Electrolytic 33 μF 10V
C03	C1HFAM154A	Mylar 0.15 μF 50V ±20%
C04	C1HFAM473A	Mylar 0.047 μF 50V ±20%
C05	C1CRY-106APA	Electrolytic 10 μF 16V
C06	C1HRY-105APA	Electrolytic 1 μF 50V
C07	C1ERY-475APA	Electrolytic 4.7 μF 25V
C08,09	C1HFYK333APA	Mylar 0.033 μF 50V ±10%
C10	C1HFYK222APA	Mylar 2200 pF 50V ±10%
C11	C1HFYK223APA	Mylar 0.022 μF 50V ±10%
C12,13 14	C1HFAM473A	Mylar 0.047 μF 50V ±20%
C15,16 17	C1HFYK333APA	Mylar 0.033 μF 50V ±10%
C18	C1CRB-227A	Electrolytic 220 μF 16V
C19	C1CRB-107A	Electrolytic 100 μF 16V
C20	C1CRY-106APA	Electrolytic 10 μF 16V
	SEMICONDUCTORS	
D01,02 03	202 5 9110 18824	Diode, 1S188FM1-AT
IC01	IUU-LM324	IC, 4CH OP AMP LM324
IC02	IVV-CX-065A	IC, Servo Control CX-065
Q01,02	203 5 5000 53650	TR, 2SC536 E-NP
Q03,05 07	203 5 6850 40040	TR, 2SD400 D-MP, E
Q04,06 08	203 5 6860 54440	TR, 2SB544 D-MP, E
	RESISTORS	
R01	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R02	R2EDZJ332APA	Carbon 3.3k 1/4W ±5%
R03	R2EDZJ152APA	Carbon 1.5k 1/4W ±5%
R04	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R05	R2EDZJ224APA	Carbon 220k 1/4W ±5%
R06	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R07	R2EDZJ562APA	Carbon 5.6k 1/4W ±5%
R08	R2EDZJ391APA	Carbon 390 1/4W ±5%
R09,10	R2EDZJ154APA	Carbon 150k 1/4W ±5%
R11	R2EDZJ823APA	Carbon 82k 1/4W ±5%
R12	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R13	R2EDZJ101APA	Carbon 100 1/4W ±5%
R14,15 16	R2EDZJ181APA	Carbon 180 1/4W ±5%
R17,18 19	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R20,21 22	R2EDZJ4R7APA	Carbon 4.7 1/4W ±5%
R23	R2EDZJ333APA	Carbon 33k 1/4W ±5%

POWER SUPPLY P.C.B. Assy
131 0 4001 01020

Ref. No.	Parts Number	Description
	4 2349 20960	Fuse 200mA Slow Blow
	4 2352 00200	Fuse Clip
	4 2362 00040	Plug 3P
	CAPACITORS	
C01	C2EHRM223A	MP Con.0.022 μF 250V ±20%
	RESISTORS	
R01	R3AXBJ822A	Oxide Metal Film 8.2k 1W ±5%

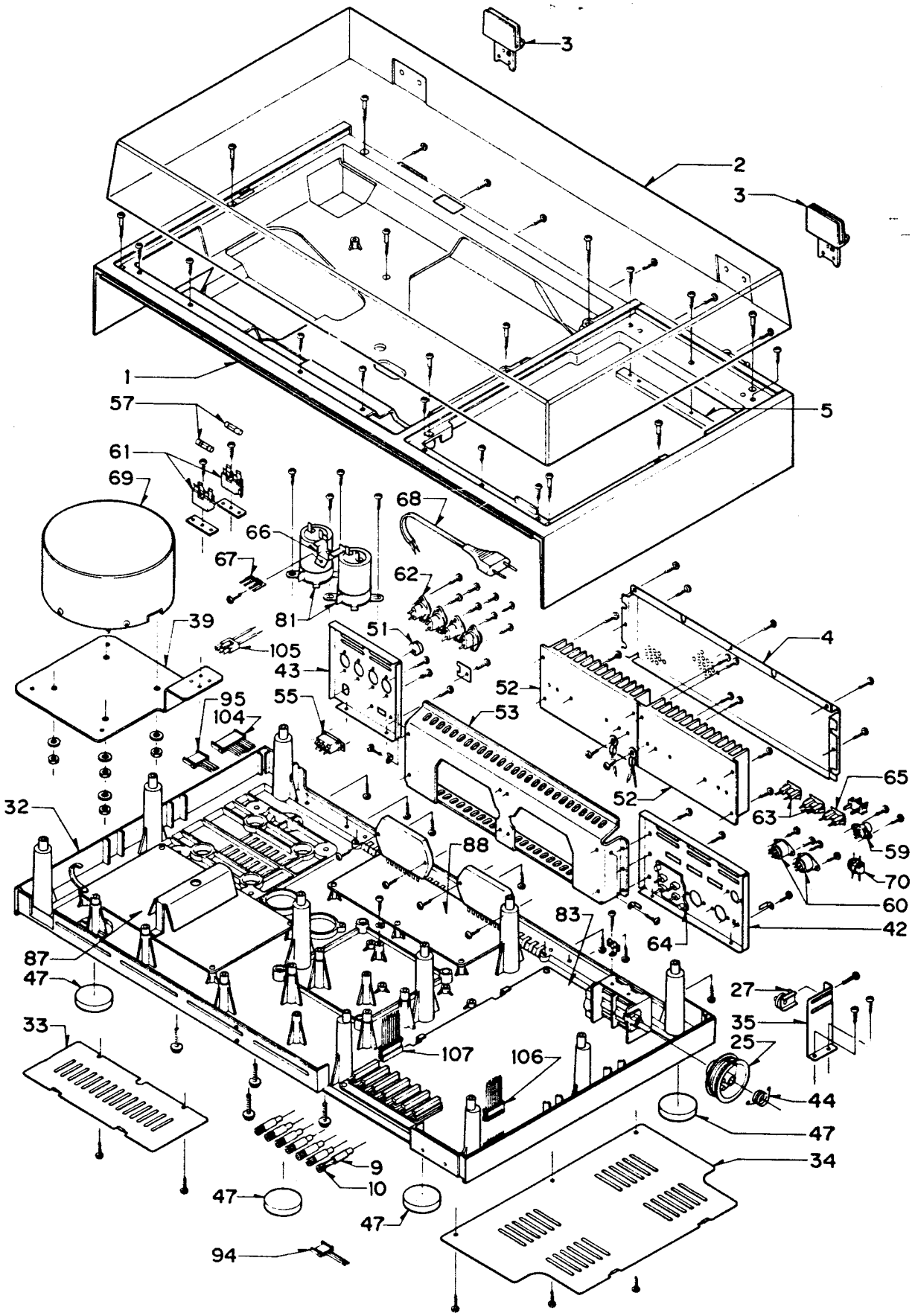
EXPLODED VIEW

FRONT PANEL
MOUNTED ASSEMBLIES



EXPLODED VIEW

CABINET AND CHASSIS
REAR MOUNTED ASSEMBLIES



PARTS LIST

PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 74000	Box Corrugate-EXP
	131 6 2119 01870	Bag Polyethylene-EXP
	131 6 2119 01880	Bag Polyethylene-EXP
	131 6 2519 01300	Bag Polyethylene Ind.
	131 6 3009 27500	Pad (Receiver Bottom)
	131 6 3009 27510	Pad (Lid, Side)
	131 6 3009 27520	Pad (Turntable, Mat)
	131 6 3009 27530	Pad (Lid Top)
	131 6 3009 27970	Pad (Cabinet - Lid)

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	4 1539 20041	Microphone
	4 2412 00030	Cassette (Music Tape)
	131 6 2719 10801	Bag Fan
	131 6 4119 74200	Explanatory Booklet
	131 6 4519 14700	Guarantee Certificate (German)
	131 6 4519 15200	Guarantee Certificate (French)

CABINET PARTS LIST

Ref. No.		Parts Number	Description
1		131 2 1101 39300	Cabinet (Top)
2		131 0 2022 90180	Lid Assy
		131 2 1107 21000	Lid
		131 2 1310 22104	Name Plate (Lid Top)
		131 2 2904 12300	Pad Lid (Lid Front)
3		131 0 2002 15700	Hinge Assy (Lid)
4		131 2 1410 20200	Cover
5	*	131 2 3101 57100	Metal Mount (Deck)

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
6	131 0 1016 30600	Decorative Panel Assy
7	131 0 1001 49300	Knob, Tuning
8	131 0 1001 49400	Knob, Push Switch
9	131 2 1601 54200	Knob, Preset Volume (A)
10	131 2 1601 54300	Knob, Preset Volume (B)
11	131 2 1601 54500	Knob, Slide Volume
12	131 0 3011 18200	Dial Pointer Assy
13	131 2 1201 32000	Dial Plate
14	131 2 1103 20500	Door, Preset
15	131 2 2307 10900	Slide (Preset)
16	131 2 4208 28900	Spacer (Tuning Shaft)
17	131 2 4208 29700	Spacer (Power Switch)
18	131 2 5205 21200	Cushion (Dial Pointer)
19	131 2 5205 20800	Cushion Slide (Preset)
20	131 2 6113 31900	Shelter Dial Under
21 *	131 2 3101 57200	Metal Mount (AFC Switch)
22 *	131 2 3101 57700	Metal Mount (ES Dial)

CHASSIS PARTS LIST

Ref. No.		Parts Number	Description
25		131 0 3002 11300	Drum Assy, Tuning Gang
26		131 0 3003 20000	Tuning Shaft Assy
27		131 0 3020 00960	Pulley Assy
28		131 0 3020 11100	Pulley Assy (Right Rear)
29		131 0 3020 11200	Pulley Assy (Left Rear)
30		131 0 3020 11300	Pulley Assy (Middle)
31		131 0 3020 11400	Pulley Assy (Cabinet Front)
32		131 2 1101 39200	Cabinet
33		131 2 1410 20300	Cover (Bottom)
34		131 2 1410 20400	Cover (Bottom)
35	*	131 2 3101 57000	Metal Mount, Pulley (Rear)
36	*	131 2 3101 57400	Metal Mount, Shelter Light (L,R)
37	*	131 2 3101 57500	Metal Mount, Headphone (Left)
38	*	131 2 3101 57600	Metal Mount, Front Right
39	*	131 2 3101 58700	Metal Mount, Transformer
40	*	131 2 3101 58800	Metal Mount, Lamp (Right)
41	*	131 2 3305 25000	Panel Front (Left)
42	*	131 2 3306 27400	Panel Rear (Right)
43	*	131 2 3306 27500	Panel Rear (Left)
44		131 2 4111 00400	Tension Spring
45		131 2 4112 10200	Dial Cord
46		131 2 4120 12400	Slide Rail, Dial Pointer
47		131 2 5205 20300	Cushion (Leg)
48	*	131 2 6101 25300	Plate Shield
49	*	131 2 6101 25700	Plate Shield
50		131 2 6110 28300	Shelter Light
51		131 2 6111 14200	Bushing, Line Cord
52		131 2 6201 22603	Plate Heat Sink
53		131 2 6201 25900	Plate Heat Sink

*—Not a service part.

PARTS LIST (Continued)

ELECTRICAL PARTS LIST

Ref. No.		Parts Number	Description
55		4 2312 01020	Slide Switch (110 - 220V)
56		4 2312 01450	Switch Push 1key
57		4 2349 20250	Fuse 2A Slow Blow
58		4 2352 00030	Headphone Jack
59		4 2352 00110	Socket 1P (FM Ant., 75 ohm)
60		4 2359 20190	Socket 5P DIN (Aux., Rec./PB)
61		4 2359 21021	Fuse Holder
62		4 2359 22470	Socket 2P DIN (SP Out)
63		4 2359 22480	Socket 2P (AM Ant.)
64		4 2359 22710	Socket 4P (Rec./PB)
65		4 2359 22720	Socket 2P (FM Ant., 300 ohm)
66		4 2372 00130	Earth Terminal
67		4 2372 00140	Terminal Gnd.
68		4 2439 20526	Line Cord
69		4 2512 05820	Power Transformer 110V, 220V, 50Hz
70		4 2599 20300	Balun (FM Input)
71		4 5112 00240	Tuning Meter
72		4 5112 00250	Frequency Meter
73		4 5112 00260	VU Meter (Power Level)
74(VR01,02)		4 2222 00490	VR Slide 100k-Bx2 (Tone)
75(VR03)		4 2222 00500	VR Slide 50k-Bx2 (Volume)
76(VR04)		4 2222 00510	VR Slide 200kW (Balance)
77(PL01)		4 6129 20775	Pilot Lamp 8V 300mA
78(PL02)		4 6129 20771	Pilot Lamp 8V 300mA
79(PL03)		4 6129 20778	Pilot Lamp 8V 300mA
80(PL04)		4 6129 20772	Pilot Lamp 8V 300mA
81(C01,02)		4 2232 00160	Electrolytic 4700 μF 50V
(C03,04)		C1HYDZ473A--	Ceramic 0.047 μF 50V +80, -20%
(R01,02)		R2EDPJ104A	Carbon 100k 1/4W ±5%
82	*	131 0 4001 00790	Touch Switch LED P C B. Assy
83	*	131 0 4001 00980	AM-FM/MPX P C B. Assy
84	*	131 0 4001 00990	EQ Function P C B. Assy
85	*	131 0 4001 01000	Switch P C B. Assy
86	*	131 0 4001 01010	Power Switch P C B. Assy
87	*	131 0 4001 01030	Power Supply P.C.B. Assy
88	*	131 0 4001 01040	Power Amp P.C.B. Assy
89	*	131 0 4001 01050	Function LED P C B. Assy
90	*	131 0 4006 17500	Cord Assy 3P
91	*	131 0 4006 17600	Cord Assy 5P
92	*	131 0 4006 17700	Cord Assy 10P
93	*	131 0 4006 17800	Cord Assy 7P - 5P
94	*	131 0 4006 17900	Cord Assy 3P
95	*	131 0 4006 18000	Cord Assy 5P
96	*	131 0 4006 18100	Cord Assy 10P
97	*	131 0 4006 18200	Cord Assy 7P
98	*	131 0 4006 18300	Cord Assy 5P
99	*	131 0 4006 18400	Cord Assy 5P
100	*	131 0 4006 18500	Cord Assy 6P
101	*	131 0 4006 18600	Cord Assy 8P
102	*	131 0 4006 18700	Cord Assy 3P
103	*	131 0 4006 18800	Cord Assy 9P - 10P
104	*	131 0 4006 19000	Cord Assy 10P
105	*	131 0 4006 20200	Cord Assy
106	*	131 0 4006 16800	Cord Assy 9P
107	*	131 0 4006 16900	Cord Assy 10P

* -Not a service part.

RECOMMENDED TEST EQUIPMENT

The following test equipment is recommended to completely test and align the tuner

- Line Voltage Isolation Transformer
- AC DC Multimeter.
- Accurately Calibrated AC Voltmeter
- Oscilloscope (Flat to 100 kHz Minimum)
- Signal Generator for MW, LW, and SW
- IF Gene-scope
- Loop Antenna for MW and LW
- DIN Dummy Antenna for SW
- Signal Generator for FM
- Multiplex Generator
- Dummy Antenna for FM

CONTROL SETTINGS:

Volume Control ..... Maximum (AM-IF and RF, FM-RF); Minimum (FM-IF)
Treble Control ..... Center
Bass Control ..... Center
Balance Control ..... Center
Tape Monitor ..... Source
Loudness ..... Off

AM TUNER ALIGNMENT

Maintain generator output as low as possible for suitable indications.

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
1. IF ALIGN-MENT	Connect 455 kHz IF gene-scope output to VC4 and ground lead to chassis. Use 0.1 μF capacitor in series with generator lead.	Position of non-interference Minimum Frequency	Connect IF gene-scope input to TP01, and ground lead to chassis.	Adjust IFT (2-00040) for maximum gain and best symmetry. Keep signal low enough for noise on response as shown in Figure 1.
2. MW (RF) TRACKING ALIGN-MENT (600 kHz)	Connect AM generator to Ext. AM ANT. and GND terminals. Set to 600 kHz. Modu-late with 400 Hz. (30% modulation)	Center of 600 kHz calibration mark on dial	Connect 8 ohm dummy load, AC V.T.V.M., and Oscilloscope to Ext. Speaker terminal.	Adjust MW OSC (2-00100) and AM Antenna (MW) for maximum gain output.
3. (1400 kHz)	Change generator setting to 1400 kHz.	Center of 1400 kHz calibration mark on dial	Same as above	Adjust TC05 (ANT.) and TC08 (OSC) for maximum deflection. Repeat steps (2) and (3) until optimum alignment is reached.
4. LW (RF) TRACKING ALIGN-MENT (150 kHz)	Change generator setting to 150 kHz.	Center of 150 kHz calibration mark on dial	Same as above	Adjust LW OSC (2-00110) and AM Antenna (LW) for maximum gain output.
5. (350 kHz)	Change generator setting to 350 kHz.	Center of 350 kHz calibration mark on dial	Same as above	Adjust TC06 (ANT.) and TC09 (OSC) for maximum deflection. Repeat steps (4) and (5) until optimum alignment is reached.
6. SW (RF) TRACKING ALIGN-MENT (4 MHz)	Change generator setting to 4 MHz.	Center of 4 MHz calibration mark on dial	Same as above	Adjust SW OSC (2-00090) and SW Antenna (2-00040) for maximum gain output.
7. (12 MHz)	Change generator setting to 12 MHz.	Center of 12 MHz calibration mark on dial	Same as above	Adjust TC04 (ANT.) and TC07 (OSC) for maximum deflection. Repeat steps (6) and (7) until optimum alignment is reached.

FM TUNER ALIGNMENT

Maintain generator output as low as possible for suitable indications.

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
Note: The FM IF circuit utilizes a non-turnable ceramic filter which establishes the IF bandpass. To insure symmetrical tuning and selectivity, the IF must be aligned precisely to the center of the filter bandpass, rather than to 10.7 MHz as in conventional LC circuits.				
1. TUNING VOLTAGE ALIGNMENT	Do not connect generator.	Near Minimum Capacity of VC	Connect DC voltmeter to TP04 and GND lead to chassis.	Adjust VR14 to 21.0V±0.05V.
		Near Maximum Capacity of VC		Adjust VR13 to 2.83V±0.02V.
2. IF ALIGNMENT	Connect 10.7 MHz IF gene-scope output to TP (IF input) through Capacitor 20 pF.	Position of non-interference Minimum frequency	Connect IF gene-scope input to TP02.	Adjust IFT (in the Front End) for maximum gain and best symmetry. See Figure 2 for FM IF Alignment.
3. PRELIMINARY DETECTOR ALIGNMENT	Generator connections are the same as above. Adjust for S-curve display. Set generator output to −20 dB. (100 mV)	Position of non-interference	Connect IF gene-scope input to TP03.	Adjust FM DET COIL (2-00140) for minimum gain and best linearity. Adjust VR01 to obtain 0V between. Pin Nos. 16 and 17. See Figure 3 for FM Detector Alignment. Note: Harmonic Distortion test must be performed in Detector Alignment.
Note: Connect 120-ohm composition resistors in series with each lead from the RF generator to match the 50-ohm output to the 300-ohm input impedance. Generator output voltage is reduced to one-half at antenna terminals. Signal voltages specified in this table are generator output levels, *not antenna voltages.*				
4. FRONT END ALIGNMENT		Tuning knob fully counter-clockwise		Place center of dial pointer on "0" (zero) and secure pointer with bonding material.
5. FRONT END ALIGNMENT (90 MHz)	Connect FM RF generator through FM Dummy Ant. to FM ANT. terminals. Set generator to 90 MHz. Modulate with 400 Hz to provide ±75 kHz deviation. Set generator output with attenuator as low as possible.	Center of 90 MHz calibration mark on dial	Connect 8-ohm dummy load, AC V.T.V.M., and Oscilloscope to Ext. speaker terminal.	Adjust FM OSC Coil (2-00120) and FM RF Coil (2-00030) for best waveform and minimum distortion.
6. (108 MHz)	Change generator setting to 108 MHz.	Center of 108 MHz calibration mark on dial	Same as above. Connect Distortion Meter to Ext. speaker terminal.	Adjust TC03 (OSC), TC01, and TC02 for best waveform and deflection.
Note: Repeat Items 5 and 6, and confirm that Tracking Error is minimized and best sensitivity is obtained at each frequency point. Then, set generator to 98 MHz and confirm that the pointer is correctly set on the dial plate.				
7. FINAL DETECTOR ALIGNMENT (MINIMUM T.H.D.)	Set generator output level to 60 dB at 98 MHz.	Center of 98 MHz calibration mark on dial	Same as above	Adjust FM DET Coil (2-00150) for minimum distortion.

FM TUNER ALIGNMENT

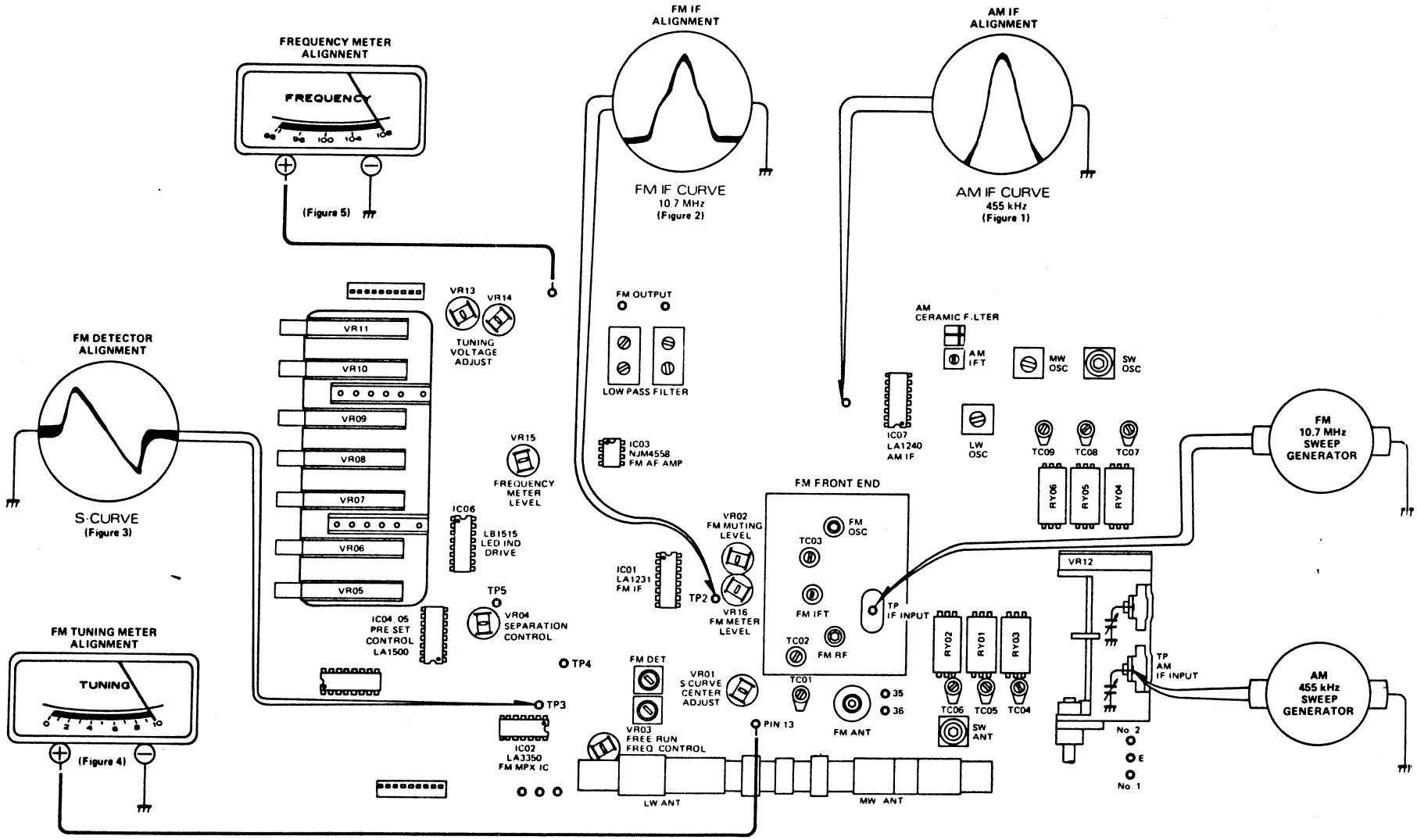
— continued —

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
8. SIGNAL STRENGTH METER ALIGN-MENT (TUNING METER)	Set generator output level to 100 dB with attenuator	Same as above	Front Panel Signal Meter	Adjust VR16 until Meter indicates 10. See Figure 4 for Signal Meter Alignment.
9. FM MUTING LEVEL ALIGN-MENT	Same as above Set generator output to 8 μV (18 dB).	Same as above		Set Muting Switch to ON and adjust VR02 until Stereo IND Lamp flashes.
10. PRE-SET CONTROL CONFIRMA-TION	Push each touch key and pre-set control knobs to the desired stations. Confirm that each tuning range is covered.			
11. FREQUENCY METER ALIGN-MENT	Turn one of the control knobs fully clockwise (The control knob is set to 108 MHz.) and push the corresponding touch key. Then, adjust VR15 until the Frequency Meter indicates 108 MHz. See Figure 5 for Frequency Meter Alignment.			
12. PILOT FREQUENCY ADJUST-MENT		Position of non-interference	Connect Frequency Counter to Pin No. 22 and GND terminals.	Adjust VR03 until Frequency Counter indicates 19 kHz.
13. FM STEREO SIGNAL SEP-ARATION CONTROL ADJUST-MENT	Connect FM Stereo SG to FM ANT. terminals. 19 kHz signal ON. Main channel, sub channel signal ON. Apply 1000 Hz signal from L ch.	Same as above	Connect 8-ohm dummy load, AC V.T.V.M., and Ext. speaker terminal to RIGHT Channel.	Adjust VR04 for minimum output.
	Same as above RIGHT Channel		Same as above LEFT Channel	Note: Do not turn Low Pass Filter as already adjusted.

CAUTION: This precision high-fidelity instrument should be serviced only by qualified personnel, trained in the repair of transistor equipment and printed circuitry.

AM-FM TUNER BOAD LAYOUT

WITH OSCILLOSCOPE TIME BASE SETTINGS
(TOP VIEW)

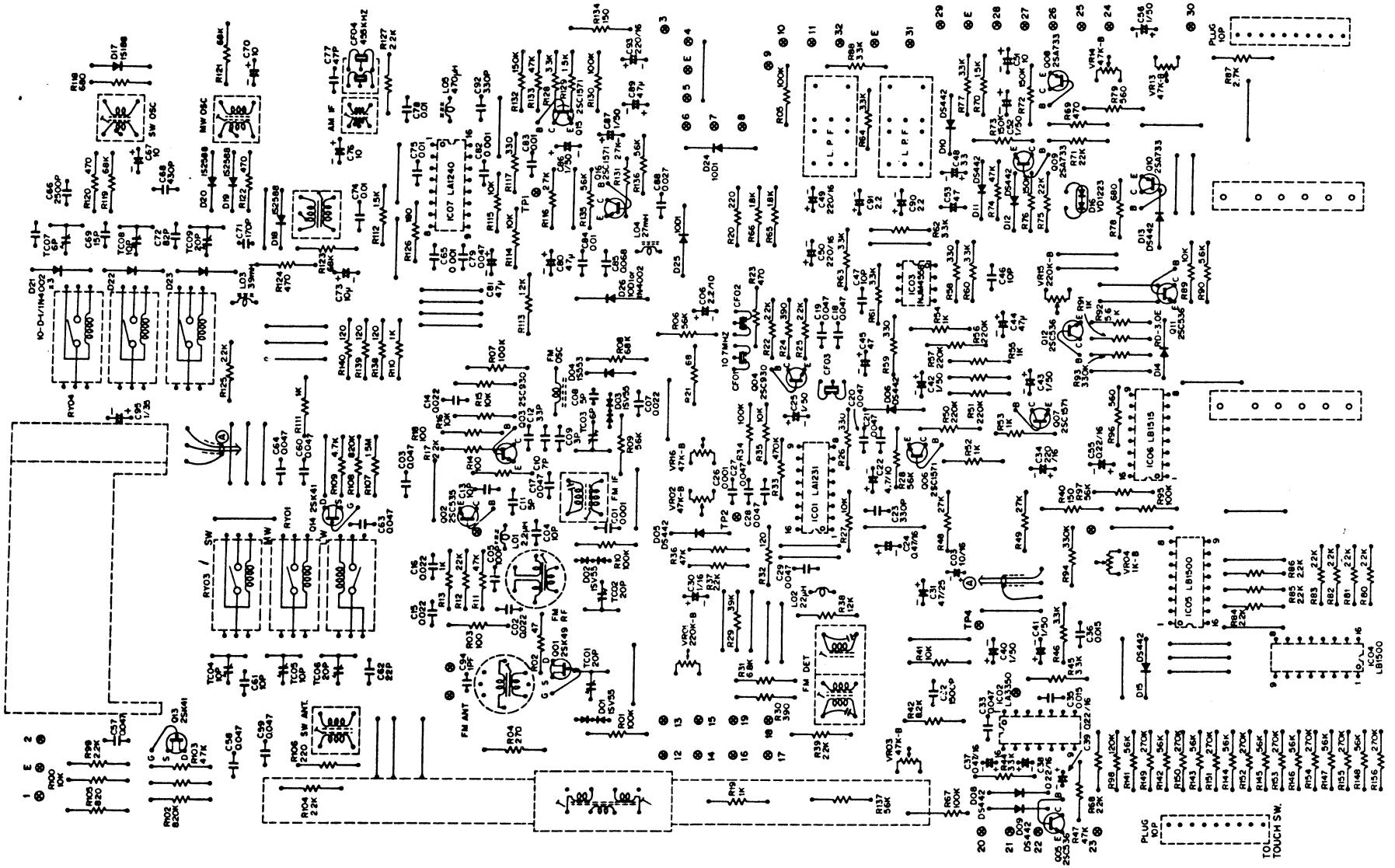


Trimmer Capacitor

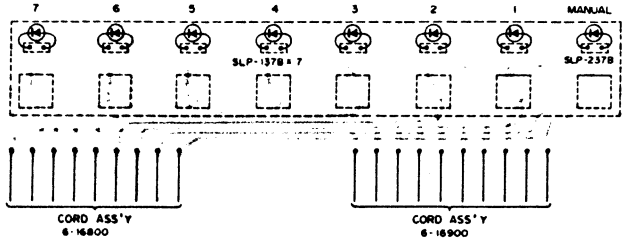
TC01	FM ANT.	TC04	SW ANT.	TC07	SW OSC
TC02	FM RF	TC05	MW ANT.	TC08	MW OSC
TC03	FM OSC	TC06	LW ANT.	TC09	LW OSC

AM-FM/MPX P.C.BOARD

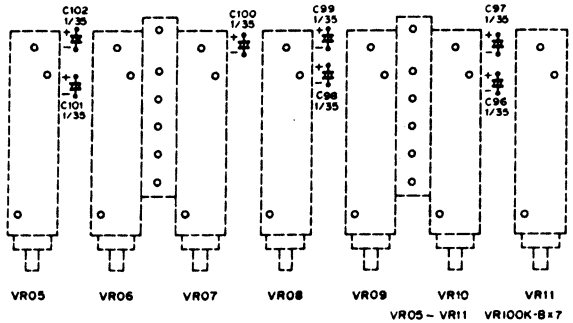
(BOTTOM VIEW)



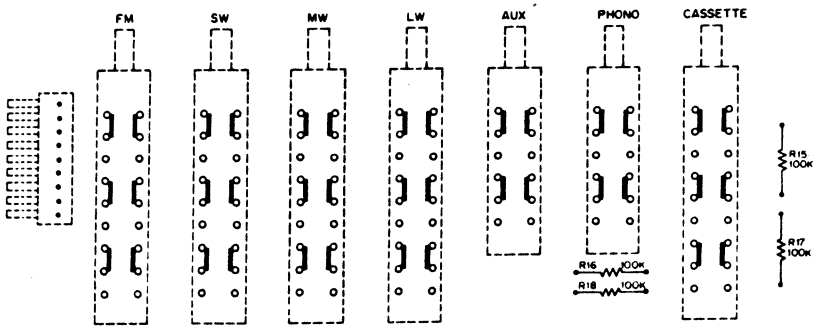
TOUCH SWITCH L.E.D. P.C.BOARD
(BOTTOM VIEW)



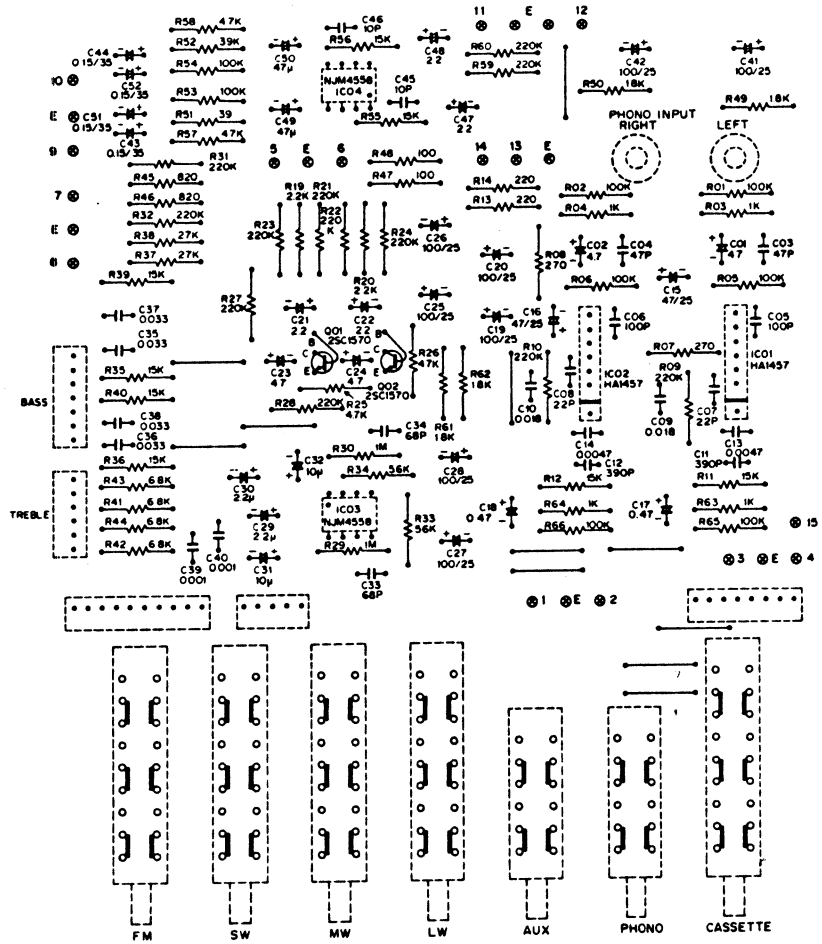
FM PRE-SET VOLUME P.C.BOARD
(BOTTOM VIEW)



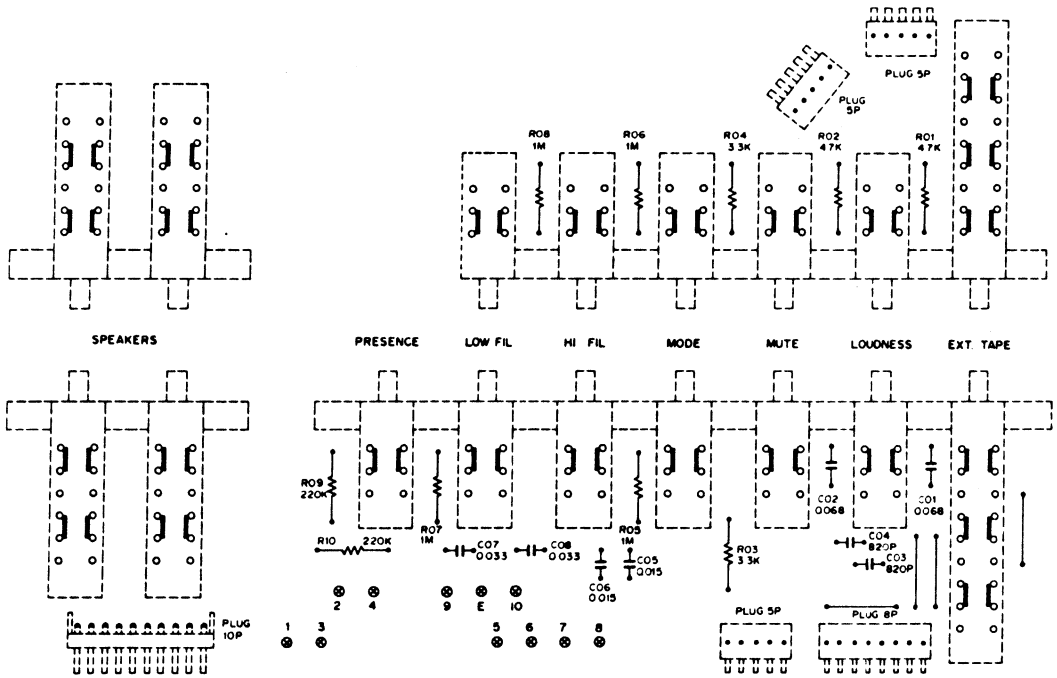
EQ FUNCTION SWITCH P.C.BOARD
(BOTTOM VIEW)



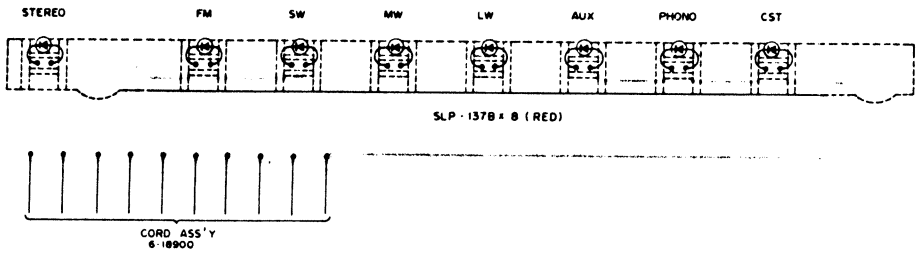
EQ FUNCTION P.C.BOARD
(BOTTOM VIEW)



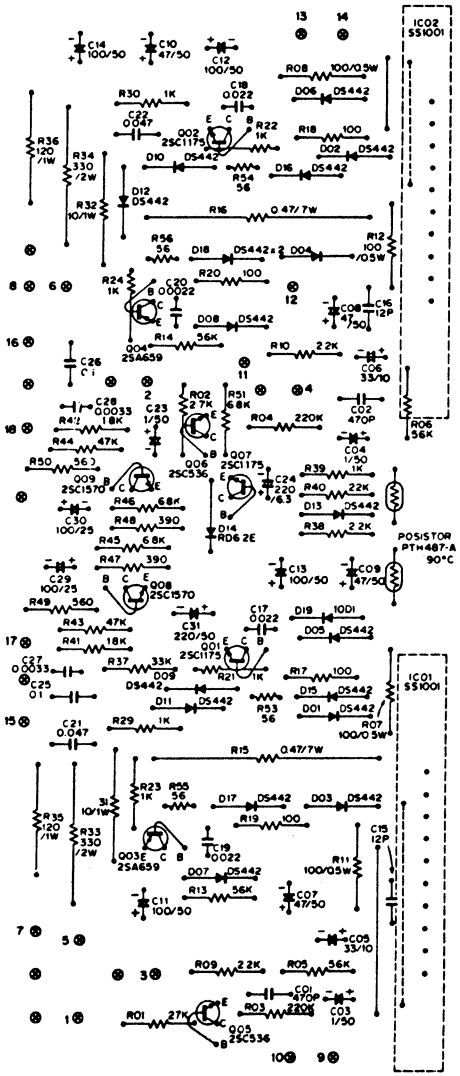
CONTROL SWITCH P.C.BOARD
(BOTTOM VIEW)



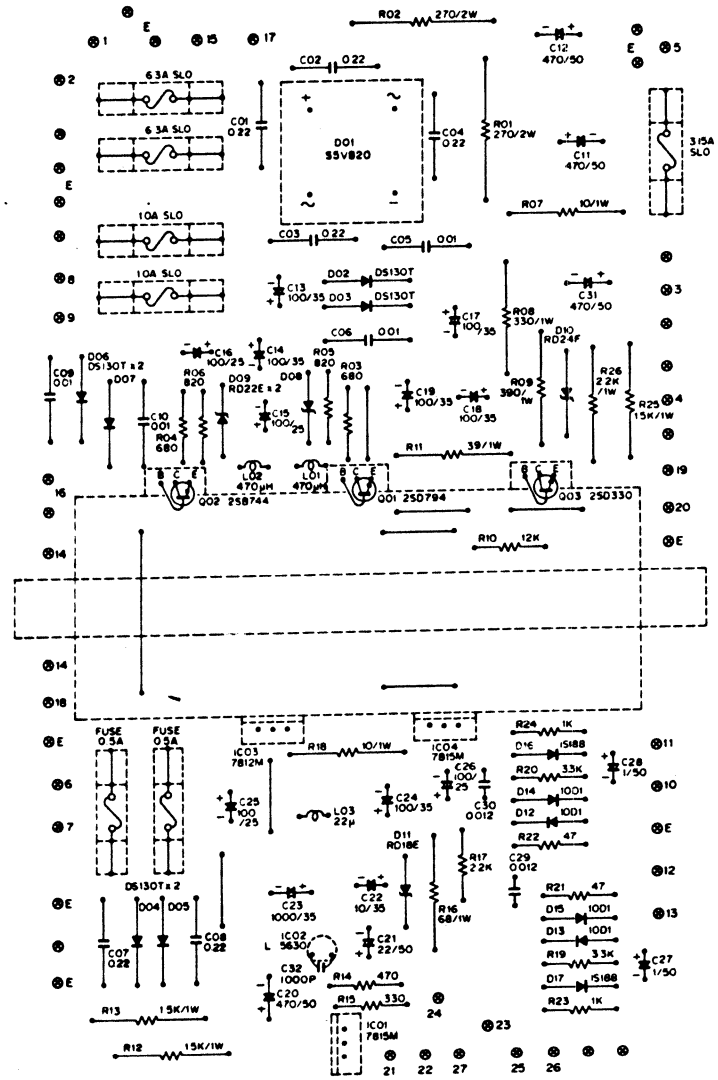
FUNCTION L.E.D. P.C.BOARD
(BOTTOM VIEW)



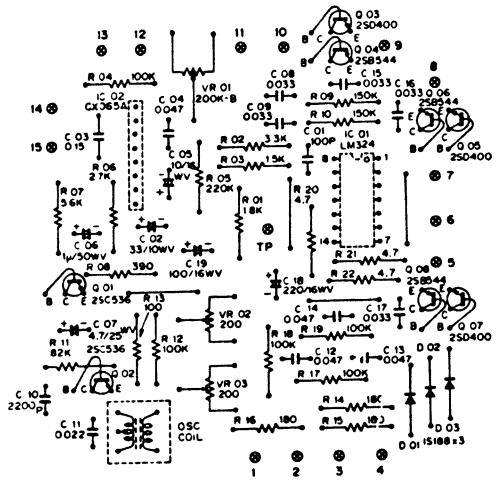
POWER AMP P.C.BOARD
(BOTTOM VIEW)



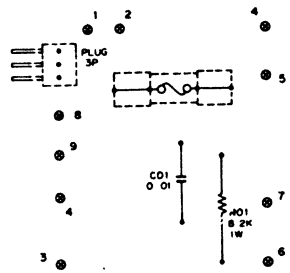
POWER SUPPLY P.C.BOARD
(BOTTOM VIEW)



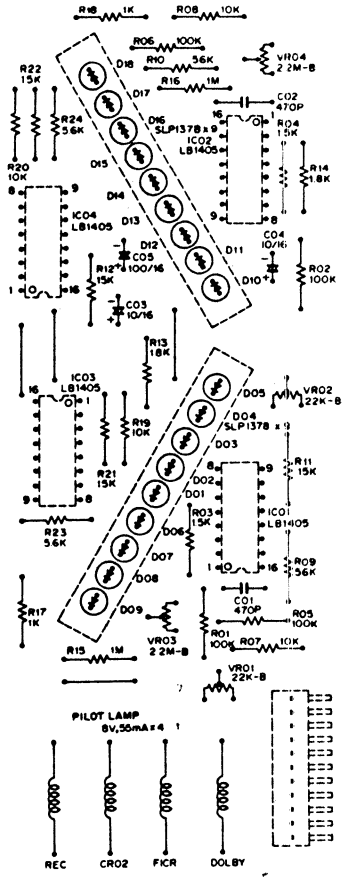
TURNTABLE MOTOR P.C.BOARD
(BOTTOM VIEW)



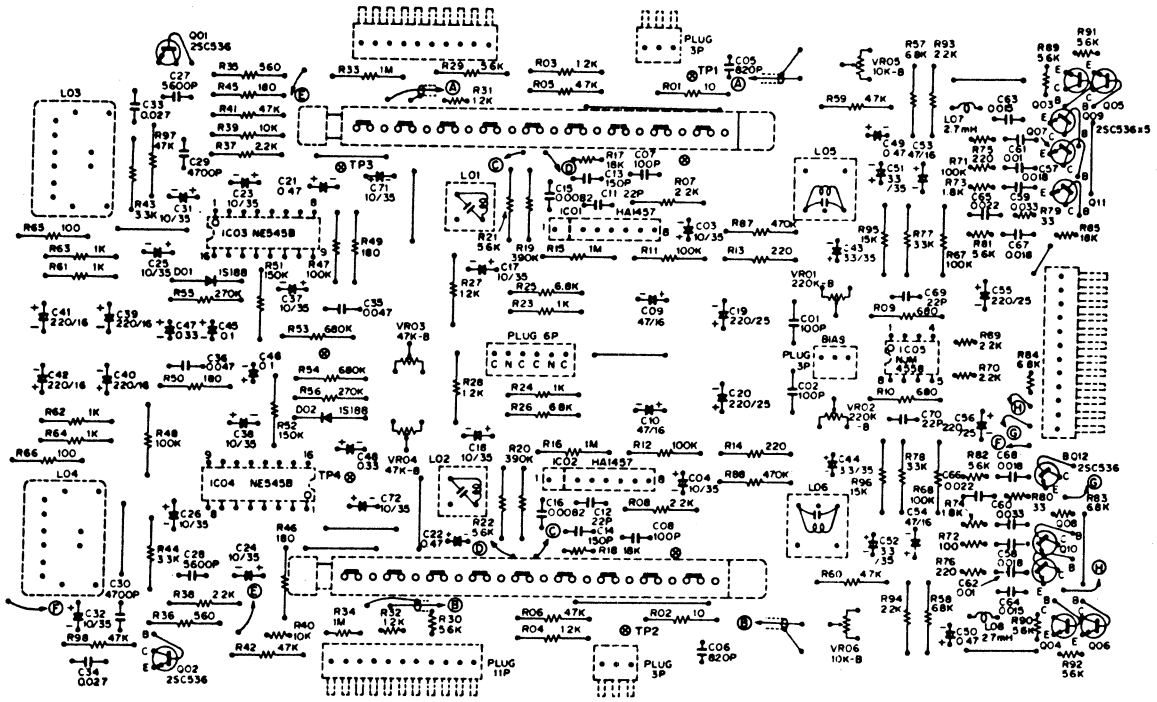
TURNTABLE POWER SUPPLY P.C.BOARD
(BOTTOM VIEW)



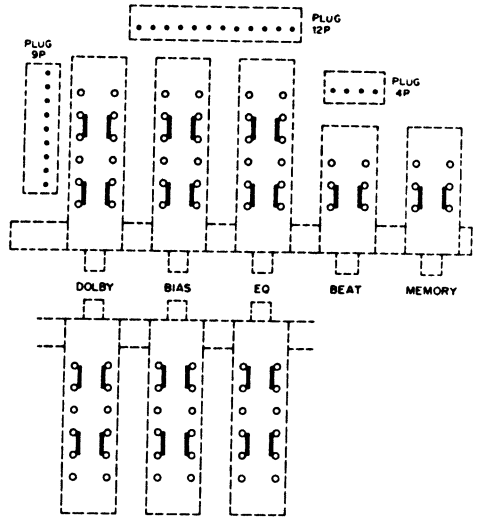
L.E.D. METER P.C.BOARD
(BOTTOM VIEW)



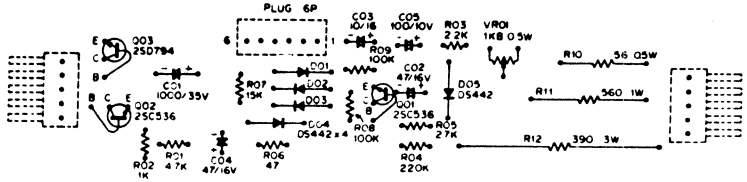
CASSETTE REC/PLAY P.C.BOARD
(BOTTOM VIEW)



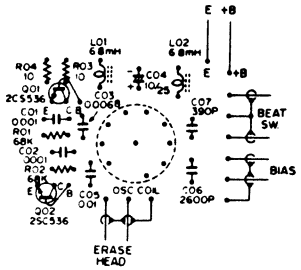
CASSETTE SWITCH P.C.BOARD
(BOTTOM VIEW)



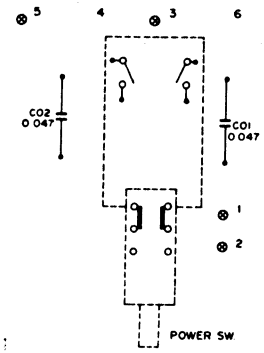
MUTING PLUNGER P.C.BOARD
(BOTTOM VIEW)



CASSETTE OSC P.C.BOARD
(BOTTOM VIEW)



POWER SWITCH P.C.BOARD
(BOTTOM VIEW)



PARTS LIST

AM-FM/MPX P.C.B. Assy
131 0 4001 00980

Ref. No.	Parts Number	Description
	4 2242 00050	Vari-Con with/Volume
	4 2362 00140	Plug 10P
	4 2362 00180	Plug 9P
	4 2379 21880	Terminal 1-1PL
	4 2522 00050	AF Filter
	4 2562 00040	IF Transformer, AM
	4 2562 00140	IF Transformer, FM DET
	4 2562 00150	IF Transformer, FM
	4 2569 21360	IF Transformer, FM
	4 2572 00040	Antenna Coil, SW
	4 2572 00050	Antenna Coil, FM
	4 2579 25140	Bar Antenna, AM (MW, LW)
	4 2582 00090	OSC Coil, SW
	4 2582 00100	OSC Coil, MW
	4 2582 00110	OSC Coil, LW
	4 2582 00120	OSC Coil, FM
	4 2592 00030	RF Coil, FM
CF01,02 03	4 2272 00020	Ceramic Filter (10.7 MHz)
CF04	4 2272 00010	Ceramic Filter (455 kHz)
L01	4 2532 00010	Choke Coil 2.2 μH
L02	4 2532 00070	Choke Coil 22 μH
L03	4 2532 00080	Choke Coil 39 mH
L04	4 2532 00090	Choke Coil 27 mH
L05	4 2532 00020	Choke Coil 470 μH
RY01,02 03,04 05,06	4 2322 00070	Relay Lead DC 12V
TC01,02	4 2249 20440	Trimmer Capacitor 20 pF
TC03	4 2242 00060	Trimmer 6 pF
TC04,05	4 2249 20310	Variable Capacitor 10 pF
TC06	4 2249 20440	Trimmer Capacitor 20 pF
TC07	4 2242 00060	Trimmer 6 pF
TC08	4 2249 20310	Variable Capacitor 10 pF
TC09	4 2249 20440	Trimmer Capacitor 20 pF
VR01	4 2229 26240	VR 220k-Bx1
VR02	4 2229 25100	VR 47k-B
VR03	4 2229 23880	VR 4.7k-B
VR04	4 2229 22910	VR 1k-Bx1
VR05,06 07,08 09,10 11	4 2222 00520	VR 100k-B (Pre-set)
VR13,14	4 2229 23880	VR 4.7k-B
VR15	4 2229 26240	VR 220k-Bx1
VR16	4 2229 25100	VR 47k-B

CAPACITORS

C01	C1HYYZ102APA	Ceramic	0.001 μF	50V	+80,–20%
C02	C1HYYZ223APA	Ceramic	0.022 μF	50V	+80,–20%
C03	C1HYYZ473APA	Ceramic	0.047 μF	50V	+80,–20%
C04	C1HCSD100SL	Ceramic	10 pF	50V	±0.5%
C05	C1HCSK101SL	Ceramic	100 pF	50V	±10%
C06	C1AUBX225A	Sint. Alu.	2.2 μF	10V	+40,–20%
C07	C1HYYZ223APA	Ceramic	0.022 μF	50V	+80,–20%
C08	C1HCDC050UJ	Ceramic	5 pF	50V	±0.25%
C09	C1HCDC030UJ	Ceramic	3 pF	50V	±0.25%
C10	C1HCDC070TH	Ceramic	7 pF	50V	±0.25%
C11	C1HCSC050SL	Ceramic	5 pF	50V	±0.25%
C12	C1HCDK330TH	Ceramic	33 pF	50V	±10%

Ref. No.	Parts Number	Description
	CAPACITORS	
C13	C1HCDJ100TH	Ceramic 10 pF 50V ±5%
C14	C1HYYZ223APA	Ceramic 0.022 μF 50V +80,–20%
C15,16	C1HYYZ223APA	Ceramic 0.022 μF 50V +80,–20%
C17,18 19,20 21	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C22	C1AUBX475A	Sint. Alu. 4.7 μF 10V +40,–20%
C23	C1HCYK331APA	Ceramic 330 pF 50V ±10%
C24	C1CUBX474A	Sint. Alu. 0.47 μF 16V +40,–20%
C25	C1HRY-105APA	Electrolytic 1 μF 50V
C26	C1HYYZ102APA	Ceramic 0.001 μF 50V +80,–20%
C27,28 29	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C30	C1CUBX105A	Sint. Alu. 1 μF 16V +40,–20%
C31	C1ERY-475LPA	Electrolytic 4.7 μF 25V
C32	C1HSEJ152A	Styrol 1500 pF 50V ±5%
C33	C1HFYK473APA	Mylar 0.047 μF 50V ±10%
C34	C1CRB-227A	Electrolytic 220 μF 16V
C35,36	C1HFYK153APA	Mylar 0.015 μF 50V ±10%
C37	C1CUBX474A	Sint. Alu. 0.47 μF 16V +40,–20%
C38,39	C1CUBX224A	Sint. Alu. 0.22 μF 16V +40,–20%
C40,41 42,43	C1HRY-105LPA	Electrolytic 1 μF 50V
C44,45	C1CRY-476APA	Electrolytic 47 μF 16V
C46,47	C1HCSD100SL	Ceramic 10 pF 50V ±0.5%
C48	C1HRY-335LPA	Electrolytic 3.3 μF 50V
C49,50	C1CRB-227A	Electrolytic 220 μF 16V
C51	C1CRY-106APA	Electrolytic 10 μF 16V
C52	C1HRY-105APA	Electrolytic 1 μF 50V
C53	C1ERY-475LPA	Electrolytic 4.7 μF 25V
C55	C1CUBX224A	Sint. Alu. 0.22 μF 16V +40,–20%
C56	C1HRY-105APA	Electrolytic 1 μF 50V
C57,58 59,60	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C61	C1HCSD100SL	Ceramic 10 pF 50V ±0.5%
C62	C1HCYK220APA	Ceramic 22 pF 50V ±10%
C63,64	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C65	C1HYYZ102APA	Ceramic 0.001 μF 50V +80,–20%
C66	C1HSEK252A	Styrol 2500 pF 50V ±10%
C67	C1CRY-106APA	Electrolytic 10 μF 16V
C68	C1HSEJ431A	Styrol 430 pF 50V ±5%
C69	C1HCDJ150SL	Ceramic 15 pF 50V ±5%
C70	C1CRY-106APA	Electrolytic 10 μF 16V
C71	C1HSEJ171A	Styrol 170 pF 50V ±5%
C72	C1HCYK820APA	Ceramic 82 pF 50V ±10%
C73	C1CRY-106APA	Electrolytic 10 μF 16V
C74,75	C1HFYK103APA	Mylar 0.01 μF 50V ±10%
C76	C1CRY-106APA	Electrolytic 10 μF 16V
C77	C1HCYK470APA	Ceramic 47 pF 50V ±10%
C78	C1HFYK103APA	Mylar 0.01 μF 50V ±10%
C79	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C80,81	C1ERY-475APA	Electrolytic 4.7 μF 25V
C82	C1HYYZ102APA	Ceramic 1000 pF 50V +80,–20%
C83,84	C1HFYK103APA	Mylar 0.01 μF 50V ±10%
C85	C1HFYK683APA	Mylar 0.068 μF 50V ±10%
C86,87	C1HRY-105LPA	Electrolytic 1 μF 50V
C88	C1HFAK273A	Mylar 0.027 μF 50V ±10%
C89	C1ERY-475APA	Electrolytic 4.7 μF 25V

PARTS LIST (Continued)

Ref. No.	Parts Number	Description
	CAPACITORS	
C90,91	C1HRY 225LPA	Eelctrolytic 2.2 μF 50V
C92	C1HCYK331APA	Ceramic 330 pF 50V ±10%
C93	C1CRB-227A	Electrolytic 220 μF 16V
C94	C1HCDC010SL	Ceramic 1 pF 50V ±0.25%
C95,96 97,98 99,100 101,102	C1VTRM105A	Tantalum 1 μF 35V ±20%
C103	C1CRY-106APA	Electrolytic 10 μF 16V
	SEMICONDUCTORS	
D01,02 03	DKK-1SV55	Diode, 1SV55
D04	202 5 1010 55310	Diode, 1S553-T
D05,06 08,09 10,11 12,13	205 5 9040 44210	Diode, DS-442
D14	DNN-RD3.0E	Diode, RD-3.0E
D15	205 5 9040 44210	Diode, DS-442
D16	DNN-VD1223	Diode, VD1223
D17	202 5 9110 18820	Diode, 1S188FM1
D18,19 20	DJJ-1S2588	Diode, 1S2588
D21,22 23,24 25,26	DCC-10D1----NA	Diode, 10D1
IC01	206 5 0161 23110	IC, LA1231
IC02	206 5 0743 35012	IC, LA3350 PLL For MPX
IC03	IJJ-NJM4558D-E	IC, NJM4558D-E
IC04,05	206 5 2411 50010	IC, LB1500
IC06	206 5 2451 51510	IC, LB1515
IC07	206 5 0171 24010	IC, LA1240
Q01	TNN-2SK49--F2	TR 2SK49 F2, H1
Q02	TKK-2SC535--B	TR 2SC535 B, C
Q03	203 5 5500 93050	TR 2SC930 E
Q04	203 5 5500 93040	TR 2SC930 D, E
Q05	203 5 5000 53650	TR 2SC536 E-NP
Q06,07	203 5 5251 57170	TR 2SC1571 G, H-NP
Q08,09 10	TNN-2SA733--P	TR 2SA733 P, Q
Q11,12	203 5 5000 53650	TR 2SC536 E-NP
Q13,14	203 5 6510 04160	TR 2SK41 F-NP
Q15,16	203 5 5251 57170	TR 2SC1571 G, H-NP

RESISTORS

R01	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R02	R2EDZJ470APA	Carbon	47	1/4W	±5%
R03	R2EDZJ101APA	Carbon	100	1/4W	±5%
R04	R2EDZJ271APA	Carbon	270	1/4W	±5%
R05	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R06	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R07	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R08	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R09	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R10	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R11	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R12	R2EDZJ223APA	Carbon	22k	1/4W	±5%

Ref. No.	Parts Number	Description
	RESISTORS	
R13	R2EDZJ102APA	Carbon 1k 1/4W ±
R14	R2EDZJ101APA	Carbon 100 1/4W ±
R15,16	R2EDZJ103APA	Carbon 10k 1/4W ±
R17	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R18	R2EDZJ101APA	Carbon 100 1/4W ±
R19	R2EDZJ102APA	Carbon 1k 1/4W ±
R20	R2EDZJ221APA	Carbon 220 1/4W ±
R21	R2EDZJ680APA	Carbon 68 1/4W ±
R22	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R23	R2EDZJ471APA	Carbon 470 1/4W ±
R24	R2EDZJ391APA	Carbon 390 1/4W ±
R25	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R26	R2EDZJ331APA	Carbon 330 1/4W ±
R27	R2EDZJ103APA	Carbon 10k 1/4W ±
R28	R2EDZJ563APA	Carbon 56k 1/4W ±
R29	R2EDZJ393APA	Carbon 39k 1/4W ±
R30	R2EDZJ391APA	Carbon 390 1/4W ±
R31	R2EDZJ682APA	Carbon 6.8k 1/4W ±
R32	R2EDZJ121APA	Carbon 120 1/4W ±
R33	R2EDZJ474APA	Carbon 470k 1/4W ±
R34	R2EDZJ104APA	Carbon 100k 1/4W ±
R35	R2EDZJ103APA	Carbon 10k 1/4W ±
R36	R2EDZJ473APA	Carbon 47k 1/4W ±
R37	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R38	R2EDZJ123APA	Carbon 12k 1/4W ±
R39	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R40	R2EDZJ151APA	Carbon 150 1/4W ±
R41	R2EDZJ103APA	Carbon 10k 1/4W ±
R42	R2EDZJ822APA	Carbon 8.2k 1/4W ±
R44,45 46	R2EDZJ332APA	Carbon 3.3k 1/4W ±
R47	R2EDZJ473APA	Carbon 47k 1/4W ±
R48,49	R2EDZJ273APA	Carbon 27k 1/4W ±
R50,51	R2EDZJ224APA	Carbon 220k 1/4W ±
R52,53 54,55	R2EDZJ102APA	Carbon 1k 1/4W ±
R56,57	R2EDZJ224APA	Carbon 220k 1/4W ±
R58,59	R2EDZJ331APA	Carbon 330 1/4W ±
R60,61 62,63 64	R2EDZJ332APA	Carbon 3.3k 1/4W ±
R65,66	R2EDZJ182APA	Carbon 1.8k 1/4W ±
R67	R2EDZJ104APA	Carbon 100k 1/4W ±
R68	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R69	R2EDZJ471APA	Carbon 470 1/4W ±
R70	R2EDZJ152APA	Carbon 1.5k 1/4W ±
R71	R2EDZJ223APA	Carbon 22k 1/4W ±
R72,73	R2EDZJ154APA	Carbon 150k 1/4W ±
R74	R2EDZJ473APA	Carbon 47k 1/4W ±
R75	R2EDZJ223APA	Carbon 22k 1/4W ±
R76	R2EDZJ154APA	Carbon 150k 1/4W ±
R77	R2EDZJ333APA	Carbon 33k 1/4W ±
R78	R2EDZJ681APA	Carbon 680 1/4W ±
R79	R2EDZJ561APA	Carbon 560 1/4W ±
R80	R2EDZJ222APA	Carbon 2.2k 1/4W ±
R81,82 83,84 85,86	R2EDZJ222APA	Carbon 2.2k 1/4W ±

PARTS LIST (Continued)

Ref. No.	Parts Number	Description			
	RESISTORS				
R87	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R88	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R89	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R90	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R91	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R92	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R93,94	R2EDZJ334APA	Carbon	330k	1/4W	±5%
R95	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R96	R2EDZJ561APA	Carbon	560	1/4W	±5%
R97	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R98	R2EDZJ124APA	Carbon	120k	1/4W	±5%
R99	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R100	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R101	R2EDZJ155APA	Carbon	1.5M	1/4W	±5%
R102	R2EDZJ824APA	Carbon	820k	1/4W	±5%
R103	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R104	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R105	R2EDZJ821APA	Carbon	820	1/4W	±5%
R106	R2EDZJ221APA	Carbon	220	1/4W	±5%
R107	R2EDZJ155APA	Carbon	1.5M	1/4W	±5%
R108	R2EDZJ824APA	Carbon	820k	1/4W	±5%
R109	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R110,111	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R112	R2EDZJ152APA	Carbon	1.5k	1/4W	±5%
R113	R2EDZJ122APA	Carbon	1.2k	1/4W	±5%
R114,115	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R116	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R117	R2EDZJ331APA	Carbon	330	1/4W	±5%
R118	R2EDZJ681APA	Carbon	680	1/4W	±5%
R119	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R120	R2EDZJ471APA	Carbon	470	1/4W	±5%
R121	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R122	R2EDZJ471APA	Carbon	470	1/4W	±5%
R123	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R124	R2EDZJ471APA	Carbon	470	1/4W	±5%
R125	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R126	R2EDZJ181APA	Carbon	180	1/4W	±5%
R127	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R128	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R129	R2EDZJ152APA	Carbon	1.5k	1/4W	±5%
R130	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R131	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R132	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R133	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R134	R2EDZJ151APA	Carbon	150	1/4W	±5%
R135,136,137	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R138,139,140	R2EDZJ121APA	Carbon	120	1/4W	±5%
R141,142,143,144,145,146,147,148	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R149,150	R2EDZJ274APA	Carbon	270k	1/4W	±5%
R151,152,153,154,155,156	R2EDZJ274APA	Carbon	270k	1/4W	±5%

TOUCH SW LED P.C.B. Assy
131 0 4001 00790

Ref. No.	Parts Number	Description
	DOO-SLP-137B	Light Emitting Diode (Red)
	DOO-SLP-237B	Light Emitting Diode (Green Led)
	131 2 1410 20100	Cover
	131 2 1601 53700	Knob
	131 2 4208 28700	Spacer
	131 2 7904 00100	Rubber Conduct

EQ FUNCTION P.C.B. Assy
131 0 4001 00990

Ref. No.	Parts Number	Description
	4 2312 01440	Push Switch 7key
	4 2359 23240	RCA Phono Socket
	4 2362 00020	Plug 9P
	4 2362 00050	Plug 8P
	4 2362 00100	Plug 5P
	4 2362 00130	Plug 7P
	4 2362 00140	Plug 10P
	4 2369 22800	Plug 6P
	CAPACITORS	
C01,02	C1HRY-475LPA	Electrolytic 4.7μF 50V
C03,04	C1HCYK470APA	Ceramic 47pF 50V ±10%
C05,06	C1HCYK101APA	Ceramic 100pF 50V ±10%
C07,08	C1HCYK220APA	Ceramic 22pF 50V ±10%
C09,10	C1HFYK183APA	Mylar 0.018μF 50V ±10%
C11,12	C1HSEJ391A	Styrol 390pF 50V ±5%
C13,14	C1HFYK472APA	Mylar 0.0047μF 50V ±10%
C15,16	C1ERE-476A	Electrolytic 47μF 25V
C17,18	C1HRE-474AL	Electrolytic 0.47μF 50V
C19,20	C1ERE-107A	Electrolytic 100μF 25V
C21,22	C1HRY-225LPA	Electrolytic 2.2μF 50V
C23,24	C1HRY-475LPA	Electrolytic 4.7μF 50V
C25,26	C1ERE-107A	Electrolytic 100μF 25V
27,28		
C29,30	C1HRY-225LPA	Electrolytic 2.2μF 50V
C31,32	C1HRY-106APA	Electrolytic 10μF 50V
C33,34	C1HCSK680SL	Ceramic 68pF 50V ±10%
C35,36	C1HFYK333APA	Mylar 0.033μF 50V ±10%
37,38		
C39,40	C1HFYK102APA	Mylar 0.001μF 50V ±10%
C41,42	C1ERE-107A	Electrolytic 100μF 25V
C43,44	C1VTRK154A	Tantalum 0.15μF 35V ±10%
C45,46	C1HCSD100SL	Ceramic 10pF 50V ±0.5%
C47,48	C1HRY-225LPA	Electrolytic 2.2μF 50V
C49,50	C1CRY-476APA	Electrolytic 47μF 16V
C51,52	C1VTRK154A	Tantalum 0.15μF 35V ±10%
	SEMICONDUCTORS	
IC01,02	IKK-HA1457	IC, HA1457
IC03,04	IJJ-NJM4558D-E	IC, NJM4558 D-E
Q01,02	203 5 5251 57079	TR 2SC1570 GL, HL NP

PARTS LIST (Continued)

Ref. No.	Parts Number	Description			
	RESISTORS				
R01,02	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R03,04	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R05,06	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R07,08	R2EDZJ271APA	Carbon	270	1/4W	±5%
R09,10	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R11,12	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R13,14	R2EDZJ221APA	Carbon	220	1/4W	±5%
R15,16,17,18	R2EDPJ104A	Carbon	100k	1/4W	±5%
R19,20	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R21,22,23,24	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R25,26	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R27,28	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R29,30	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R31,32	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R33,34	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R35,36	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R37,38	R2EDZJ273APA	Carbon	27k	1/4W	±5%
R39,40	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R41,42,43,44	R2EDZJ682APA	Carbon	6.8k	1/4W	±5%
R45,46	R2EDZJ821APA	Carbon	820	1/4W	±5%
R47,48	R2EDZJ101APA	Carbon	100	1/4W	±5%
R49,50	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R51,52	R2EDZJ393APA	Carbon	39k	1/4W	±5%
R53,54	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R55,56	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R57,58	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R59,60	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R61,62	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R63,64	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R65,66	R2EDZJ104APA	Carbon	100k	1/4W	±5%

FUNCTION L.E.D. P.C.B. Assy
131 0 4001 01050

Ref. No.	Parts Number	Description
	131 0 4006 18900	Cord Assy 10P
	131 2 4208 28800	Spacer (LED)
	SEMICONDUCTORS	
D01,02,03,04,05,06,07,08	DOO-SLP 137B	Light Emitting Diode (Red)

SWITCH P.C.B. Assy
131 0 4001 01000

Ref. No.	Parts Number	Description
	4 2312 01410	Switch Push 2key
	4 2312 01420	Switch Push 7key
	4 2362 00270	Plug 10P
	4 2369 22740	Plug 5P
	4 2369 22760	Plug 8P
	CAPACITORS	
C01,02	C1HFAK683A	Mylar 0.068μF 50V ±10%
C03,04	C1HYYK821RPA	Ceramic 820pF 50V ±10%
C05,06	C1HFYK153APA	Mylar 0.015μF 50V ±10%
C07,08	C1HFYK333APA	Mylar 0.033μF 50V ±10%
	RESISTORS	
R01,02	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R03,04	R2EDZJ332APA	Carbon 3.3k 1/4W ±5%
R05,06,07,08	R2EDZJ105APA	Carbon 1M 1/4W ±5%
R09,10	R2EDZJ224APA	Carbon 220k 1/4W ±5%

POWER SUPPLY P.C.B. Assy
131 0 4001 01030

Ref. No.	Parts Number	Description
	4 2349 20310	Fuse 0.5A Slow Blow
	4 2349 20380	Fuse 1A Slow Blow
	4 2349 20580	Fuse 3.15A Slow Blow
	4 2349 21570	Fuse 6.3A Time Lag
	4 2352 00200	Fuse Clip
	131 2 6201 26000	Heat Sink
L01,02	4 2539 20410	Choke Coil 470μH
L03	4 2532 00070	Choke Coil 22μH
	CAPACITORS	
C01,02,03,04	4 2239 21220	Mylar 0.22μF 250V ±10%
C05,06	C2HYDP103A	Ceramic 0.01μF 500V +100,–0
C07,08	4 2239 21220	Mylar 0.22μF 250V ±10%
C09,10	C2HYDP103A	Ceramic 0.01μF 500V +100,–0
C11,12	C1HRB-477A	Electrolytic 470μF 50V
C13,14	C1VRB-107A	Electrolytic 100μF 35V
C15,16	C1ERB-107A	Electrolytic 100μF 25V
C17,18,19	C1VRB-107A	Electrolytic 100μF 35V
C20	C1HRB-477A	Electrolytic 470μF 50V
C21	C1HRB-226A	Electrolytic 22μF 50V
C22	C1VRB-106A	Electrolytic 10μF 35V
C23	C1VRB-108A	Electrolytic 1000μF 35V
C24	C1VRB-107A	Electrolytic 100μF 35V
C25,26	C1ERB-107A	Electrolytic 100μF 25V
C27,28	C1HRY-105APA	Electrolytic 1μF 50V
C29,30	C1HFRM123A	Mylar 0.012μF 50V ±20%
C31	C1HRB-477A	Electrolytic 470μF 50V
C32	C1HYDZ102A	Ceramic 1000pF 50V +80,–20%

PARTS LIST (Continued)

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
D01	DDD-S5VB20--1	Diode, S5VB20
D02,03 04,05 06,07	DCC-10D1----NA	Diode, 10D1 or DS-130T
D08,09	DNN-RD22EB4	Diode, RD22EB4
D10	DNN-RD24FBD	Diode, RD24FBD
D11	DNN-RD18EB3	Diode, RD18EB3
D12,13 14,15	DCC-10D1----NA	Diode, 10D1
D16,17	202 5 9110 18820	Diode, 1S188FM1
IC01	IAA-FS-7815M	IC, FS-7815M
IC02	206 5 1055 63011	IC, L5630
IC03	IAA-FS-7812M	IC, FS-7812M
IC04	IAA-FS-7815M	IC, FS-7815M
Q01	TNN-2SD794--Q	TR 2SD794 Q, R
Q02	TNN-2SB744--Q	TR 2SB744
Q03	203 5 8570 33040	TR 2SD330 D, E-AL
	RESISTORS	
R01,02	R3DXBJ271A	Oxide Metal Film 270 2W ±5%
R03,04	R2EDZJ681APA	Carbon 680 1/4W ±5%
R05,06	R2EDZJ821APA	Carbon 820 1/4W ±5%
R07	R3AXBJ100A	Oxide Metal Film 10 1W ±5%
R08	R3AXBJ331A	Oxide Metal Film 330 1W ±5%
R09	R3AXBJ391A	Oxide Metal Film 390 1W ±5%
R10	R2EDZJ123APA	Carbon 12k 1/4W ±5%
R11	R3AXBJ390A	Oxide Metal Film 39 ±5%
R12,13	R3AXBJ152A	Oxide Metal Film 1 5k ±5%
R14	R2EDZJ471APA	Carbon 470 1/4W ±5%
R15	R2EDZJ331APA	Carbon 330 1/4W ±5%
R16	R3AXBJ680A	Oxide Metal Film 68 1W ±5%
R17	R2EDZJ222APA	Carbon 2 2k 1/4W ±5%
R18	R3AXBJ100A	Oxide Metal Film 10 1W ±5%
R19,20	R2EDZJ332APA	Carbon 3 3k 1/4W ±5%
R21,22	R2EDZJ470APA	Carbon 47 1/4W ±5%
R23,24	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R25	R3AXBJ152A	Oxide Metal Film 1 5k 1W ±5%
R26	R3AXBJ222A	Oxide Metal Film 2 2k 1W ±5%

POWER AMP P.C.B. Assy
131 0 4001 01040

Ref. No.	Parts Number	Description
	HLL-PTH487A-BE	Posistor 90°
	CAPACITORS	
C01,02	C1HCSK471SL	Ceramic 470 pF 50V ±10%
C03,04	C1HRY-105LPA	Electrolytic 1 µF 50V
C05,06	C1ARB-336A	Electrolytic 33 µF 10V
C07,08 09,10	C1HRB-476A	Electrolytic 47 µF 50V
C11,12 13,14	C1HRB-107A	Electrolytic 100 µF 50V
C15,16	C1HCDJ120SL	Ceramic 12 pF 50V
C17,18 19,20	C1HFYK223APA	Mylar 0 022 µF 50V ±10%
C21,22	C1HYYZ473APA	Ceramic 0 047 µF 50V +80,-20%
C23	C1HRY-105APA	Electrolytic 1 µF 50V

Ref. No.	Parts Number	Description
	CAPACITORS	
C24	C0JRB-227A	Electrolytic 220 µF 6 3V
C25,26	C1HFRK104A	Mylar 0 1 µF 50V ±10%
C27,28	C1HFRK332A	Mylar 0 0033 µF 50V ±10%
C29,30	C1ERB-107A	Electrolytic 100 µF 25V
C31	C1HRB-227A	Electrolytic 220 µF 50V
	SEMICONDUCTORS	
D01,02 03,04,05,06,07,08,09,10,11,12,13	205 5 9040 44210	Diode, DS-442
D14	DNN-RD6 2E	Diode, RD-6 2E
D15,16 17,18	205 5 9040 44210	Diode, DS-442
D19	DCC-10D1----NA	Diode, 10D1
IC01,02	206 5 6881 00110	IC, SS1001
Q01,02	203 5 6701 17550	TR 2SC1175 E, F
Q03,04	203 5 6800 65950	TR 2SA659 E, F
Q05,06	203 5 5000 53650	TR 2SC536 E-NP
Q07	203 5 6701 17550	TR 2SC1175 E, F
Q08,09	203 5 5251 57070	TR 2SC1570NP G, H
	RESISTORS	
R01,02	R2EDZJ272APA	Carbon 2 7k 1/4W ±5%
R03,04	R2EDZJ224APA	Carbon 220k 1/4W ±5%
R05,06	R2EDZJ563APA	Carbon 56k 1/4W ±5%
R07,08	R2HXBJ101A	Oxide Metal Film 100 1 2W ±5%
R09,10	R2EDZJ222APA	Carbon 2 2k 1/4W ±5%
R11,12	R2HXBJ101A	Oxide Metal Film 100 1/2W ±5%
R13,14	R2EDZJ563APA	Carbon 56k 1/4W ±5%
R15,16	R3REPKR47A	Cement 0 47 7W ±10%
R17,18 19,20	R2EDZJ101APA	Carbon 100 1/4W ±5%
R21,22 23,24,29,30	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R31,32	R3AXBJ100A	Oxide Metal Film 10 1W ±5%
R33,34	R3DXBJ331A	Oxide Metal Film 330 2W ±5%
R35,36	R3AXBJ121A	Oxide Metal Film 120 1W ±5%
R37	R2EDZJ33[illegible]APA	Carbon 33k 1/4W ±5%
R38	R2EDZJ222APA	Carbon 2 2k 1/4W ±5%
R39	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R40	R2EDZJ223APA	Carbon 22k 1/4W ±5%
R41,42	R2EDZJ182APA	Carbon 1 8k 1/4W ±5%
R43,44	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R45,46	R2EDZJ682APA	Carbon 6 8k 1/4W ±5%
R47,48	R2EDZJ391APA	Carbon 390 1/4W ±5%
R49,50	R2EDZJ561APA	Carbon 560 1/4W ±5%
R51	R2EDZJ682APA	Carbon 6 8k 1/4W ±5%
R53,54 55,56	R2EDUJ560A	Carbon 56 1/4W ±5%

POWER SWITCH P.C.B. Assy
131 0 4001 01010

Ref. No.	Parts Number	Description
	4 2312 01400	Switch Push Power
	CAPACITORS	
C01,02	C2EHRM473A	MP Con 0 047 µF 250V ±20

PARTS LIST (Continued)

CASSETTE R/P P.C.B. Assy
131 0 4001 00930

Ref. No.	Parts Number	Description
	4 2312 01460	Switch Push Slide
	4 2362 00040	Plug 3P
	4 2362 00080	Plug 3P
	4 2362 00150	Plug 11P
	4 2362 00160	Plug 12P
	4 2369 22770	Plug 10P
	4 2369 22800	Plug 6P
L01,02	4 2552 00080	AF Coil, Trap
L03,04	4 2522 00040	AF Filter, DOLBY
L05,06	4 2552 00070	AF Coil, Bias Trap
L07,08	4 2552 00090	Coil 2 7 mH
VR01,02	4 2229 26240	VR 220k-Bx1
VR03,04	4 2229 25100	VR 47k-B
VR05,06	4 2229 26230	VR 10k-Bx1
	CAPACITORS	
C01,02	C1HCSK101SL	Ceramic 100 pF 50V ±10%
C03,04	C1VTRM106A	Tantalum 10 µF 35V ±20%
C05,06	C1HSEK821A	Styrol 820 pF 50V ±10%
C07,08	C1HCYK101APA	Ceramic 100 pF 50V ±10%
C09,10	C1CRY-476APA	Electrolytic 47 µF 16V
C11,12	C1HCYK220APA	Ceramic 22 pF 50V ±10%
C13,14	C1HCDK151SL	Ceramic 150 pF 50V ±10%
C15,16	C1HFAJ822A	Mylar 0 0082 µF 50V ±5%
C17,18	C1VRE-106A	Electrolytic 10 µF 35V
C19,20	C1ERB-227A	Electrolytic 220 µF 25V
C21,22	C1EUEM474A	Sint Alu 0 47 µF 25V ±20%
C23,24 25,26	C1VRE-106A	Electrolytic 10 µF 35V
C27,28	C1HSEJ562A	Styrol 5600 pF 50V ±5%
C29,30	C1HSEJ472A	Styrol 4700 pF 50V ±5%
C31,32	C1VRE-106A	Electrolytic 10 µF 35V
C33,34	C1HFAJ273A	Mylar 0 027 µF 50V ±5%
C35,36	C1HFAJ473A	Mylar 0 047 µF 50V ±5%
C37,38	C1VRE-106A	Electrolytic 10 µF 35V
C39,40 41,42	C1CRB-227A	Electrolytic 220 µF 16V
C43,44	C1VTRM335A	Tantalum 3 3 µF 35V ±20%
C45,46	C1EUEM104A	Sint Alu. 0 1 µF 25V ±20%
C47,48	C1EUEM334A	Sint Alu. 0 33 µF 25V ±20%
C49,50	C1EUEM474A	Sint Alu 0 47 µF 25V ±20%
C51,52	C1VTRM335A	Tantalum 3 3 µF 35V ±20%
C53,54	C1CRY-476APA	Electrolytic 47 µF 16V
C55,56	C1ERB-227A	Electrolytic 220 µF 25V
C57,58	C1HFAJ183A	Mylar 0 018 µF 50V ±5%
C59,60	C1HFAJ333A	Mylar 0 033 µF 50V ±5%
C61,62	C1HFAJ103A	Mylar 0 01 µF 50V ±5%
C63,64	C1HFAJ153A	Mylar 0 015 µF 50V ±5%
C65,66	C1HFAJ223A	Mylar 0 022 µF 50V ±5%
C67,68	C1HFAJ183A	Mylar 0 018 µF 50V ±5%
C69,70	C1HCYK220APA	Ceramic 22 pF 50V ±10%
C71,72	C1VRE-106A	Electrolytic 10 µF 35V
	SEMICONDUCTORS	
D01,02	202 5 9110 18820	Diode, 1S 188FM1
IC01,02	IKK-HA1457	IC, HA1457
IC03,04	ISS-NE545B	DOLBY NR IC NE545B
IC05	IJJ-NJM4558D-E	IC, NJM4558D-E

Ref. No.	Parts Number	Description			
	SEMICONDUCTORS				
Q01,02 03,04 05,06 07,08 09,10 11,12	203 5 5000 53650	TR 2SC536 E, F-NP			
	RESISTORS				
R01,02	R2EDZJ100APA	Carbon	10	1/4W	±5%
R03,04	R2EDZJ122APA	Carbon	1 2k	1/4W	±5%
R05,06	R2EDZJ472APA	Carbon	4 7k	1/4W	±5%
R07,08	R2EDZJ222APA	Carbon	2 2k	1/4W	±5%
R09,10	R2EDZJ681APA	Carbon	680	1/4W	±5%
R11,12	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R13,14	R2EDZJ221APA	Carbon	220	1/4W	±5%
R15,16	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R17,18	R2EDUJ183A	Carbon	18k	1/4W	±5%
R19,20	R2EDZJ394APA	Carbon	390k	1/4W	±5%
R21,22	R2EDZJ562APA	Carbon	5 6k	1/4W	±5%
R23,24	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R25,26	R2EDZJ682APA	Carbon	6 8k	1/4W	±5%
R27,28	R2EDZJ122APA	Carbon	1 2k	1/4W	±5%
R29	R2EDZJ562APA	Carbon	5 6k	1/4W	±5%
R30	R2EDUJ562A	Carbon	5 6k	1/4W	±5%
R31,32	R2EDUJ122A	Carbon	1 2k	1/4W	±5%
R33	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R34	R2EDUJ105A	Carbon	1M	1/4W	±5%
R35,36	R2EDZJ561APA	Carbon	560	1/4W	±5%
R37,38	R2EDZJ222APA	Carbon	2 2k	1/4W	±5%
R39	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R40	R2EDUJ103A	Carbon	10k	1/4W	±5%
R41,42	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R43,44	R2EDZJ332APA	Carbon	3 3k	1/4W	±5%
R45,46	R2EDZJ181APA	Carbon	180	1/4W	±5%
R47,48	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R49,50	R2EDZJ181APA	Carbon	180	1/4W	±5%
R51,52	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R53,54	R2EDZJ684APA	Carbon	680k	1/4W	±5%
R55,56	R2EDZJ274APA	Carbon	270k	1/4W	±5%
R57,58	R2EDZJ682APA	Carbon	6 8k	1/4W	±5%
R59,60	R2EDZJ472APA	Carbon	4 7k	1/4W	±5%
R61,62 63,64	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R65,66	R2EDZJ101APA	Carbon	100	1/4W	±5%
R67,68	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R69,70	R2EDUJ222A	Carbon	2 2k	1/4W	±5%
R71,72	R2EDUJ101A	Carbon	100	1/4W	±5%
R73,74	R2EDUJ182A	Carbon	1 8k	1/4W	±5%
R75,76	R2EDUJ471A	Carbon	470	1/4W	±5%
R77,78	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R79,80	R2EDUJ330A	Carbon	33	1/4W	±5%
R81,82	R2EDUJ562A	Carbon	5 6k	1/4W	±5%
R83,84	R2EDUJ682A	Carbon	6 8k	1/4W	±5%
R85	R2EDUJ183A	Carbon	18k	1/4W	±5%
R87,88	R2EDZJ474APA	Carbon	470k	1/4W	±5%
R89,90	R2EDUJ562A	Carbon	5 6k	1/4W	±5%
R91,92	R2EDUJ392A	Carbon	3 9k	1/4W	±5%
R93,94	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R95,96	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R97,98	R2EDZJ473APA	Carbon	47k	1/4W	±5%

PARTS LIST (Continued)

LED METER P.C.B. Assy
131 0 4001 00940

Ref. No.	Parts Number	Description
	4 2362 00150	Plug 11P
	4 6122 00700	Pilot Lamp (8V 55 mA)
	131 2 4208 29000	Spacer
VR01,02	4 2229 25670	VR 22k-B
VR03,04	4 2222 00540	VR 2.2M-B
	CAPACITORS	
C01,02	C1HYDK471R	Ceramic 470 pF 50V ±10%
C03,04	C1CRE-106A	Electrolytic 10 μF 16V
C05	C1CRE-107A	Electrolytic 100 μF 16V
	SEMICONDUCTORS	
D01,02 03,04 05,06 07,08 09,10 11,12 13,14 15,16 17,18	DOO-SLP-137B	Light Emitting Diode (Red)
IC01,02 03,04	206 5 2351 40510	IC, LB1405
	RESISTORS	
R01,02	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R03,04	R2EDZJ152APA	Carbon 1.5k 1/4W ±5%
R05,06	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R07,08	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R09,10	R2EDZJ563APA	Carbon 56k 1/4W ±5%
R11,12	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R13,14	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R15,16	R2EDZJ105APA	Carbon 1M 1/4W ±5%
R17,18	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R19,20	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R21,22	R2EDZJ152APA	Carbon 1.5k 1/4W ±5%
R23,24	R2EDZJ562APA	Carbon 5.6k 1/4W ±5%

CASSETTE OSC P.C.B. Assy
131 0 4001 00950

Ref. No.	Parts Number	Description
	4 2582 00080	OSC Coil (Cassette)
L01,02	4 2559 20440	AF Coil 68 mH
	CAPACITORS	
C01,02	C1HFAK122A	Mylar 0.0012 μF 50V ±10%
C03	C1HFAK682A	Mylar 0.0068 μF 50V ±10%
C04	C1ERE-106A	Electrolytic 10 μF 25V
C05	C1HFAK103A	Mylar 0.01 μF 50V ±10%
C06	C2BSEJ262A	Styrol 2600 pF 125V ±5%
C07	C2BSEJ391A	Styrol 390 pF 125V ±5%
	SEMICONDUCTORS	
Q01,02	203 5 5000 53660	TR 2SC536

Ref. No.	Parts Number	Description
	RESISTORS	
R01,02	R2EDUJ683A	Carbon 68k 1/4W ±5%
R03,04	R2EDUJ100A	Carbon 10 1/4W ±5%

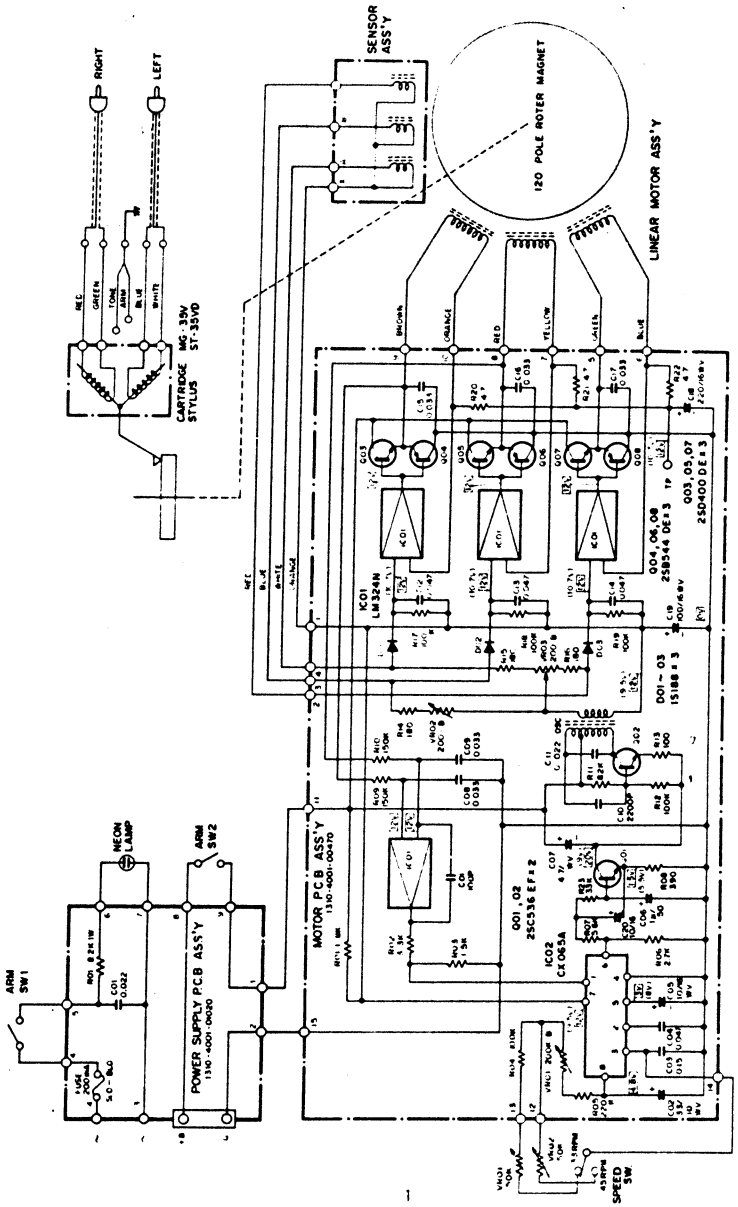
SWITCH P.C.B. Assy
131 0 4001 00960

Ref. No.	Parts Number	Description
	4 2312 01430	Switch Push 5key
	4 2362 00170	Plug 4P
	4 2362 00180	Plug 9P
	4 2362 00260	Plug 12P

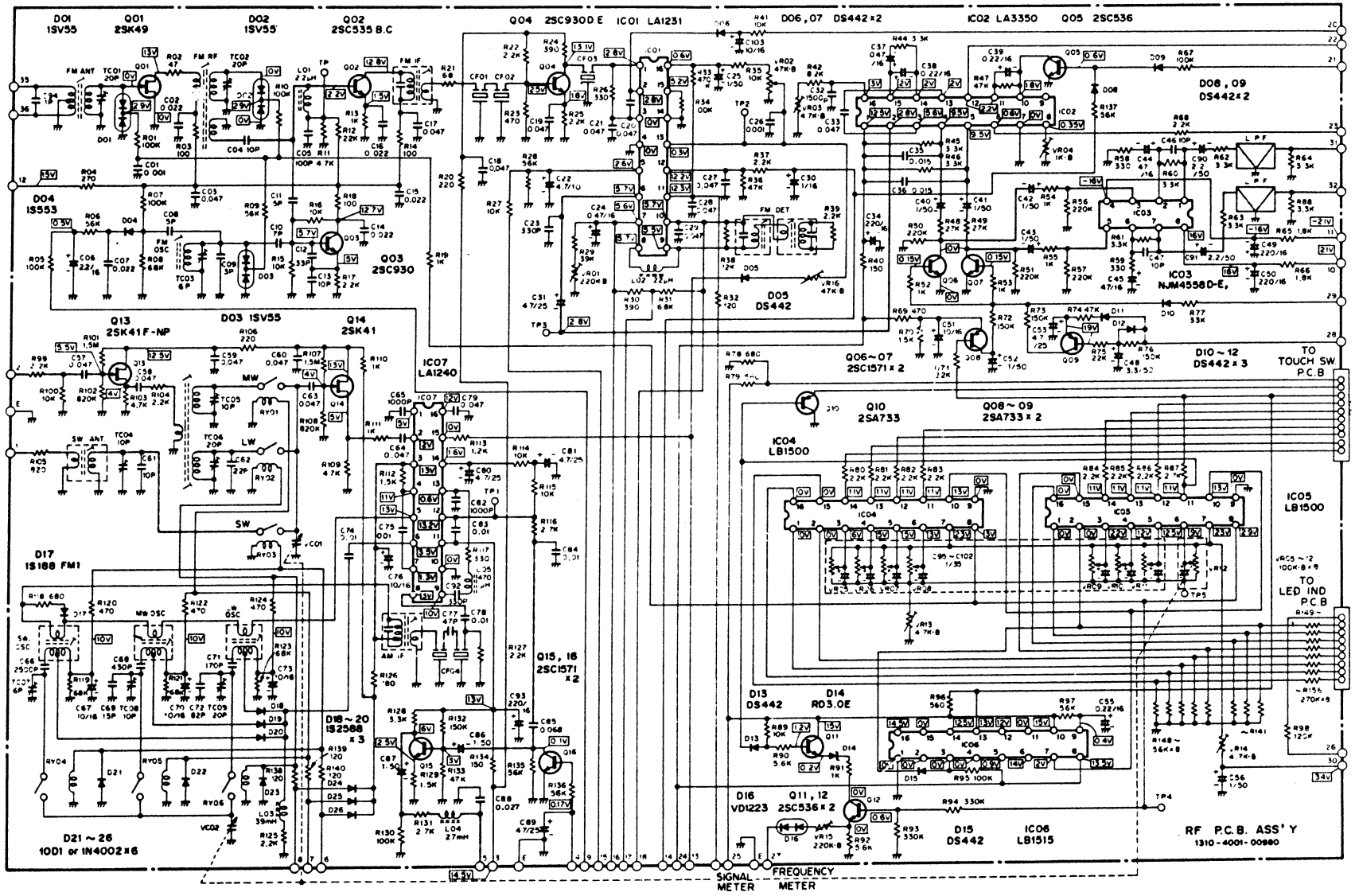
MUTING PLUNGER P.C.B. Assy
131 0 4001 00970

Ref. No.	Parts Number	Description
	4 2369 22740	Plug 5P
	4 2369 22800	Plug 6P
VR01	4 2222 00750	VR 330 1/2W
	CAPACITORS	
C01	C1VRE-108A	Electrolytic 1000 μF 35V
C02	C1CRE-476A	Electrolytic 47 μF 16V
C03	C1CRE-106A	Electrolytic 10 μF 16V
C04	C1CRE-476A	Electrolytic 47 μF 16V
C05	C1ARE-107A	Electrolytic 100 μF 10V
	SEMICONDUCTORS	
D01,02 03,04 05	205 5 9040 44210	Diode, DS-442
Q01,02	203 5 5000 53650	TR 2SC536 E, F-NP
Q03	TNN-2SD794-Q	TR 2SD794 Q, R
	RESISTORS	
R01	R2EDUJ472A	Carbon 4.7k 1/4W ±5%
R02	R2EDUJ102A	Carbon 1k 1/4W ±5%
R03	R2EDUJ222A	Carbon 2.2k 1/4W ±5%
R04	R2EDUJ224A	Carbon 220k 1/4W ±5%
R05	R2EDUJ272A	Carbon 2.7k 1/4W ±5%
R06	R2EDUJ470A	Carbon 47 1/4W ±5%
R07	R2EDUJ153A	Carbon 15k 1/4W ±5%
R08,09	R2EDUJ104A	Carbon 100k 1/4W ±5%
R10	R2HXBJ100A	Oxide Metal Film 10 1/2W ±5%
R11	R3AXBJ391A	Oxide Metal Film 390 1W ±5%
R12	R3WXBJ391A	Oxide Metal Film 390 3W ±5%

TURNTABLE SCHEMATIC DIAGRAM



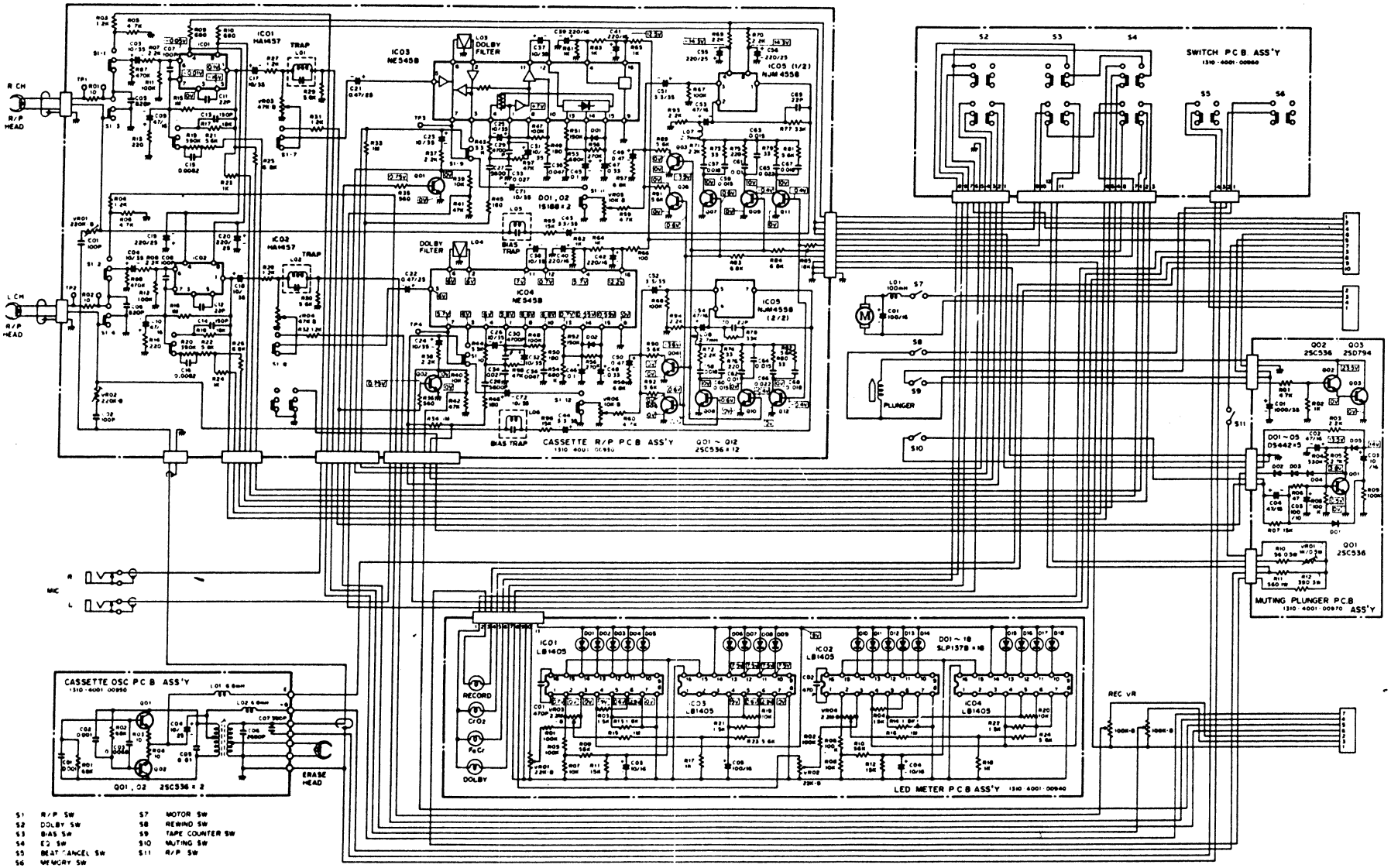
AM-FM/MPX SCHEMATIC DIAGRAM



NOTES:

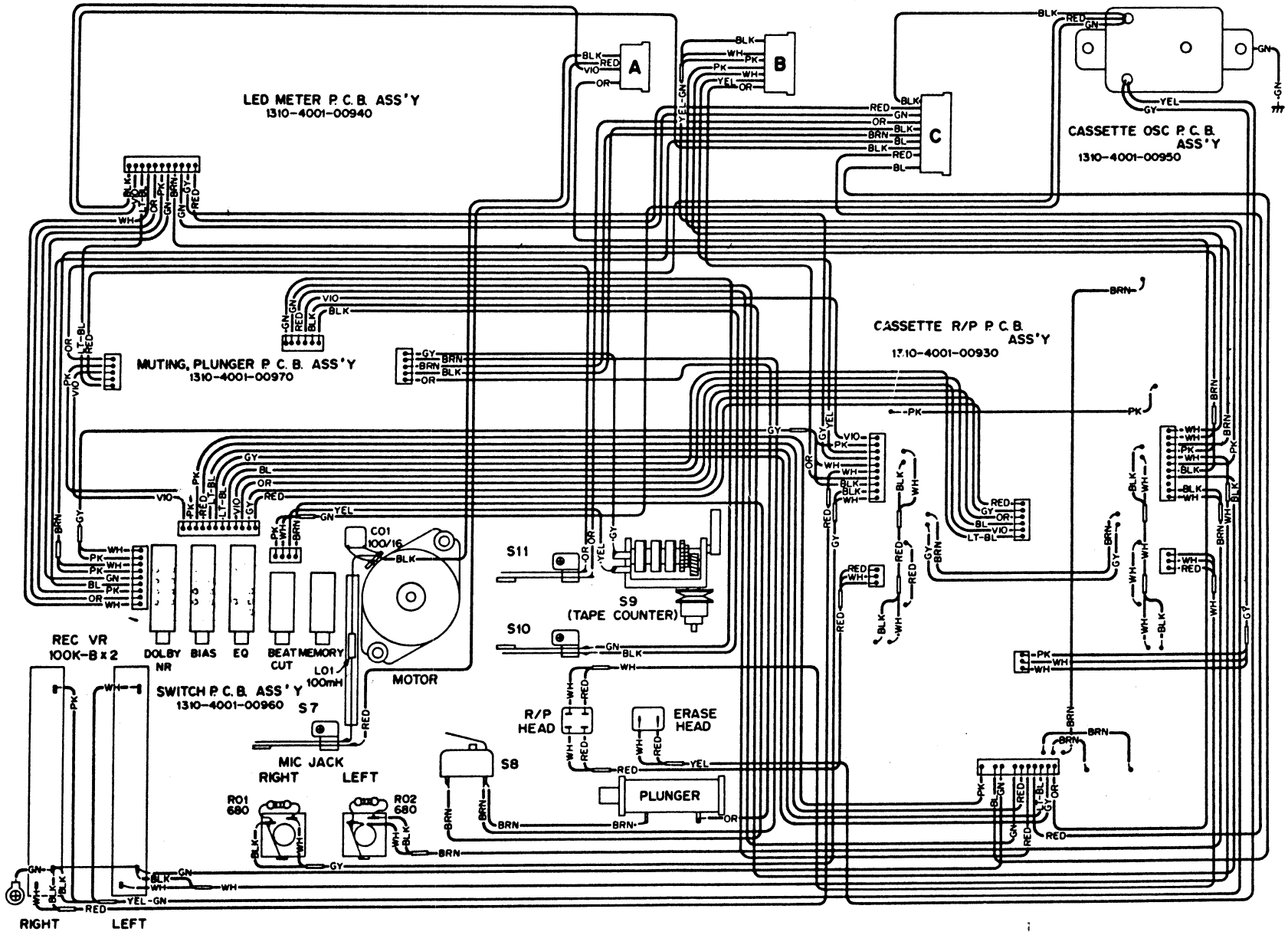
1. All resistors values are indicated in "ohm" (K=10^3, M=10^6)
2. All capacitors values are indicated in "μF" (P=10^{-12})
3. All voltages indicated on the schematics are measured under the following conditions
   a. Use a V T V M
   b. All voltages ±10% with respect chassis ground
   c. No signals at input terminals
   d. AC input 220 volts 50 Hz
4. This is a fundamental schematics diagram. Some products may be modified without notice

CASSETTE DECK SCHEMATIC DIAGRAM

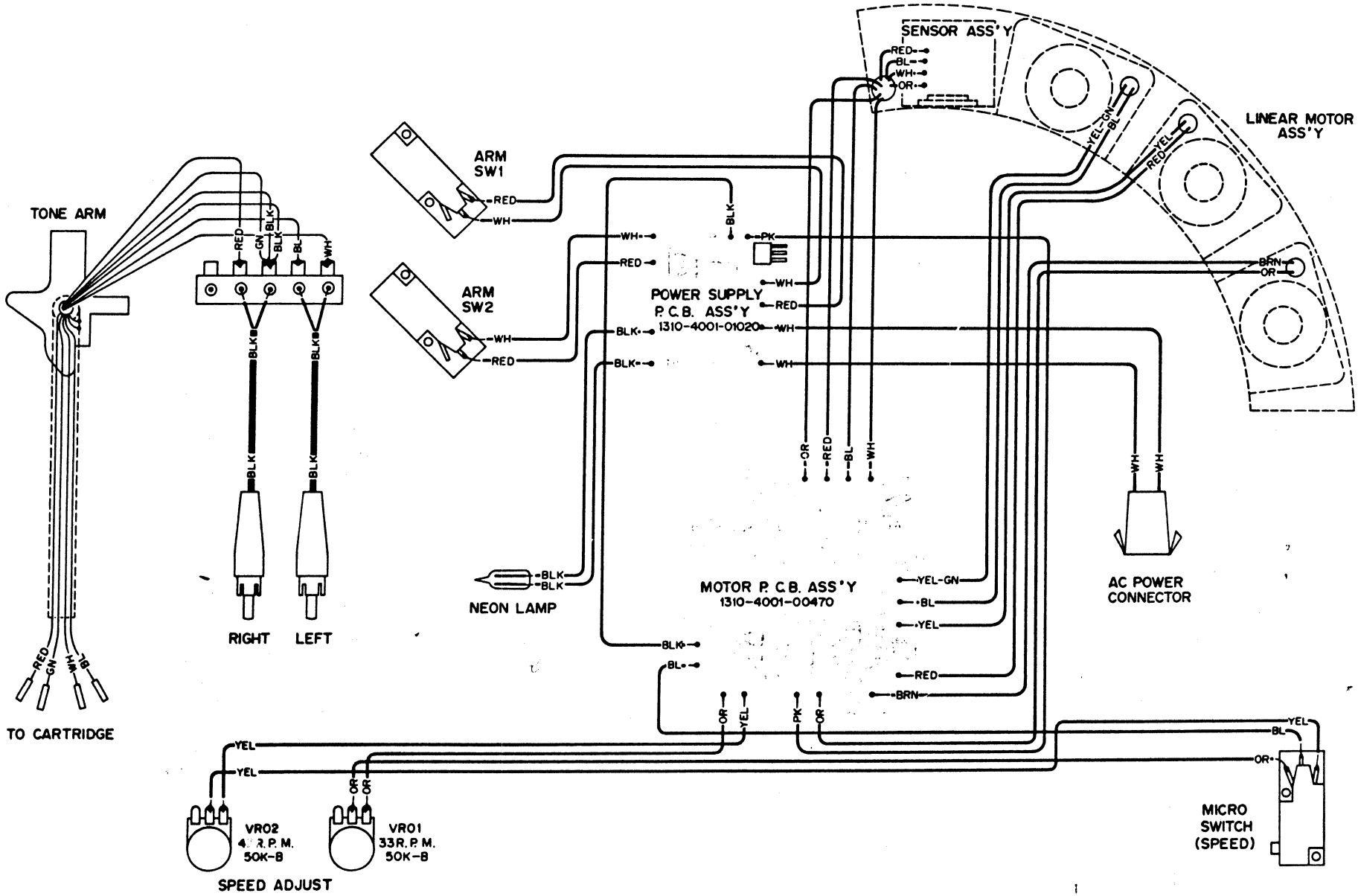


S1	R/P SW	S7	MOTOR SW
S2	DOLBY SW	S8	REWIND SW
S3	BIAS SW	S9	TAPE COUNTER SW
S4	EQ SW	S10	MUTING SW
S5	BEAT CANCEL SW	S11	R/P SW
S6	MEMORY SW		

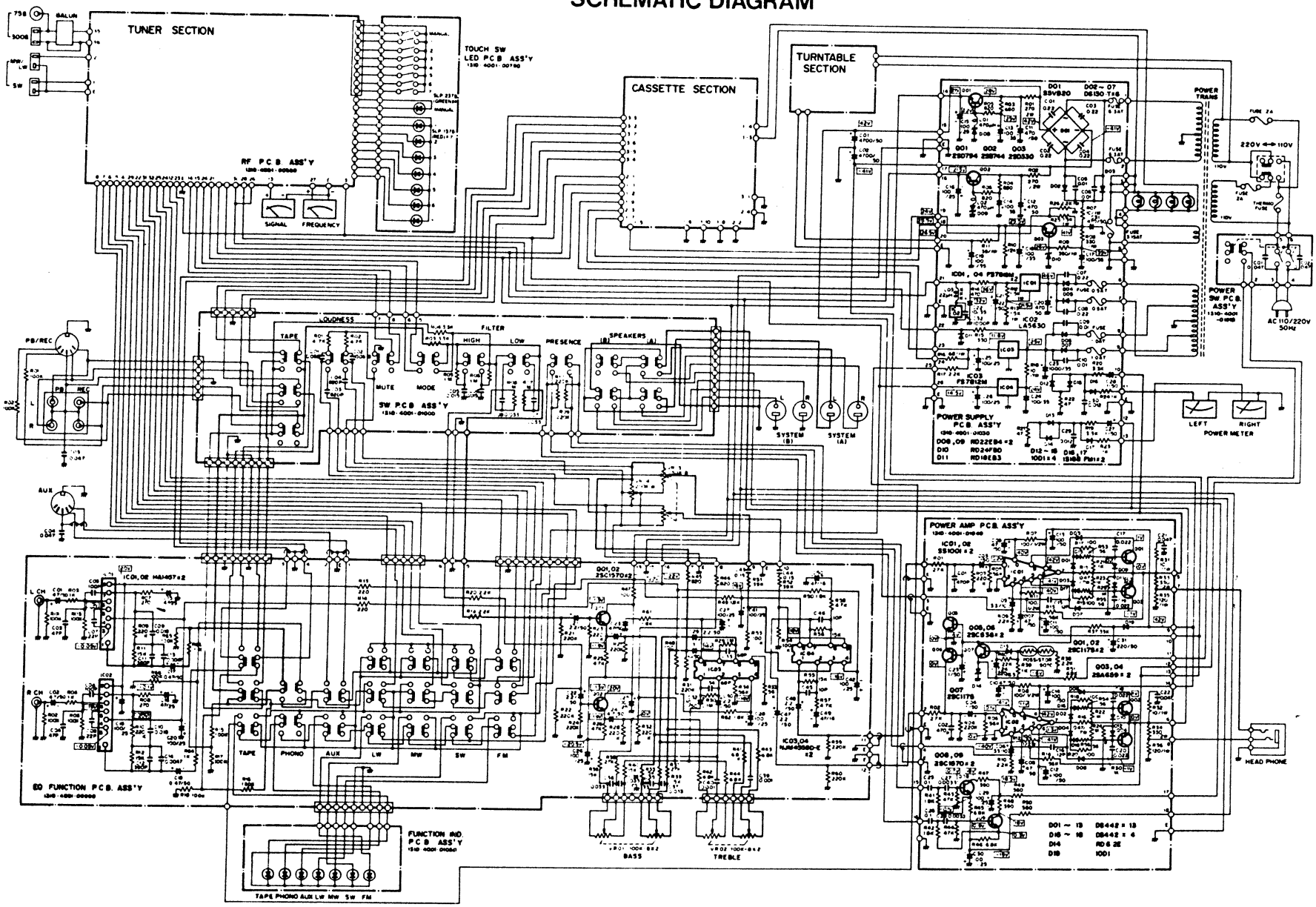
CASSETTE DECK WIRING DIAGRAM



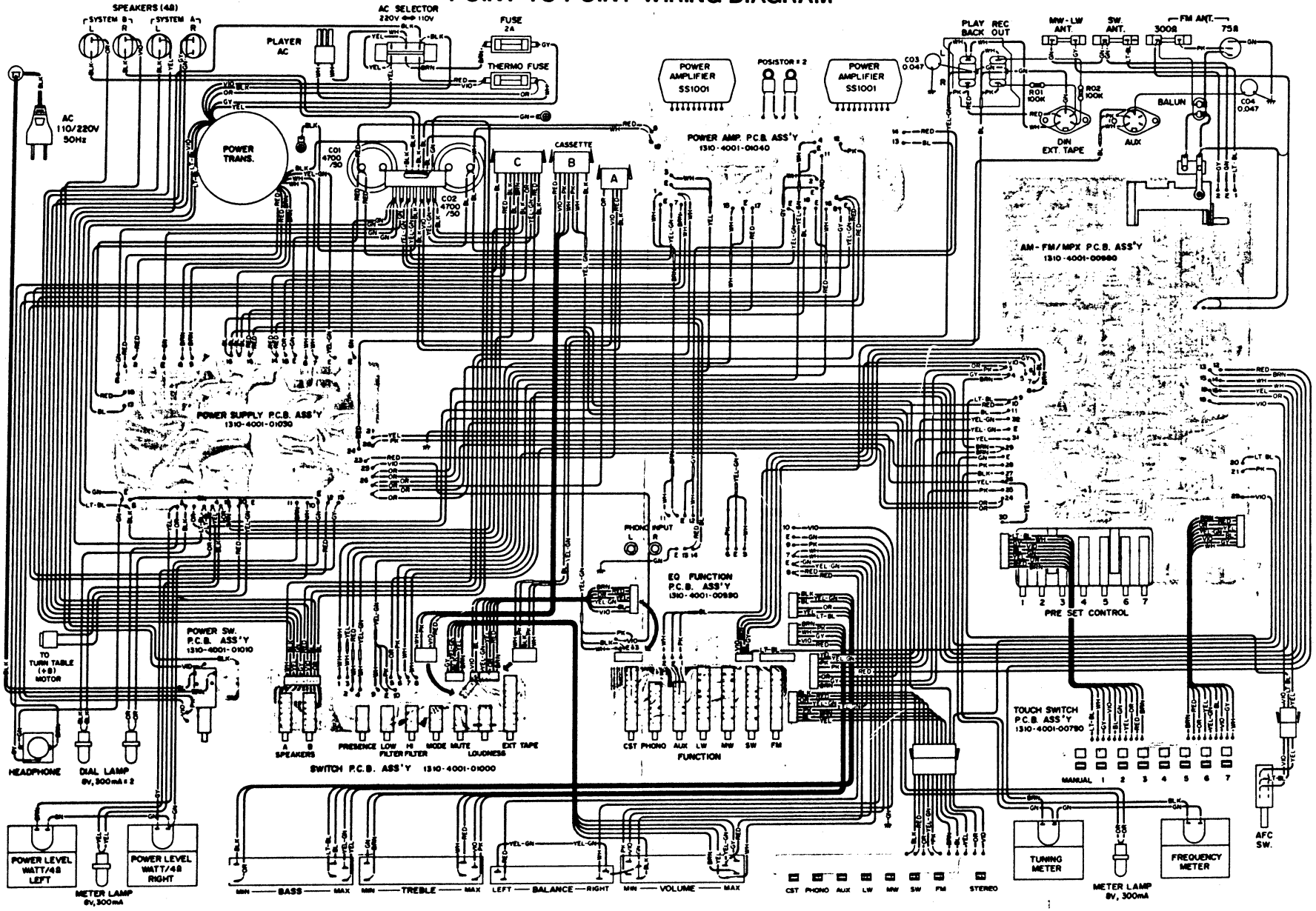
TURNTABLE WIRING DIAGRAM



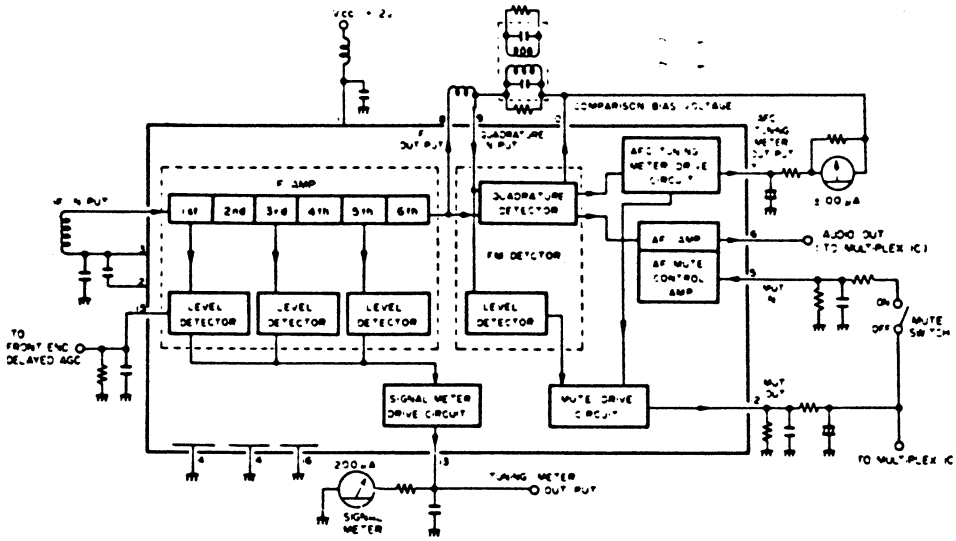
SCHEMATIC DIAGRAM

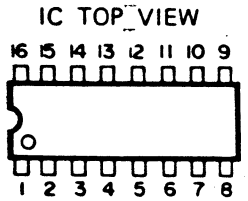


POINT TO POINT WIRING DIAGRAM

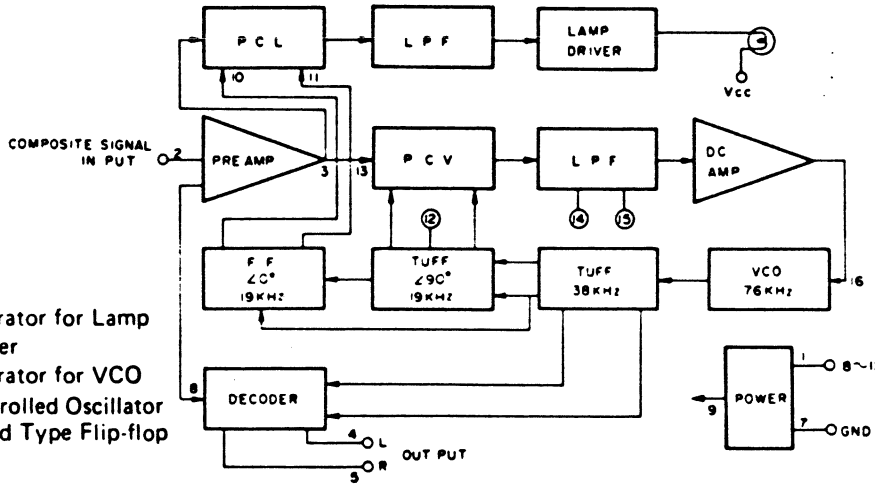


FM IF IC LA1230 SIGNAL FLOW

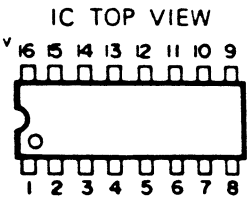




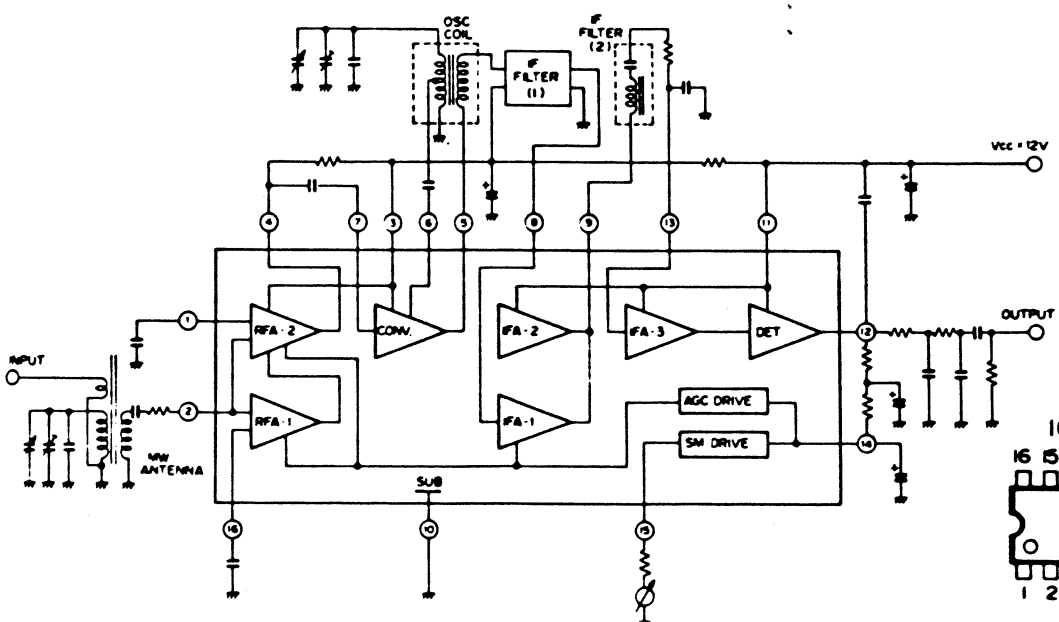
FM MPX IC LA3350 SIGNAL FLOW

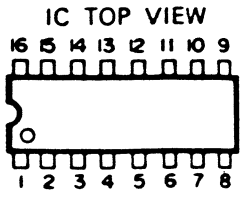


P. C. L. : Phase Comparator for Lamp
L. P. F. : Low Pass Filter
P. C. V. : Phase Comparator for VCO
V C O : Voltage Controlled Oscillator
TUFF : Direct coupled Type Flip-flop



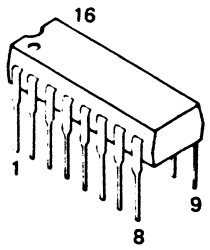
AM RF IF IC LA1240 SIGNAL FLOW



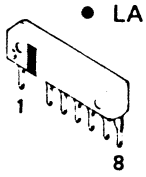


SEMICONDUCTOR LEAD IDENTIFICATION

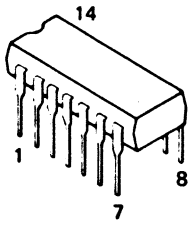
INTEGRATED CIRCUITS



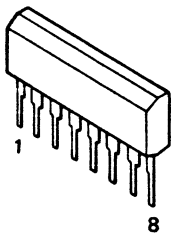
- LA1231
- LA1240
- LA3350
- NE545B
- LB1500
- LB1515
- LA1405



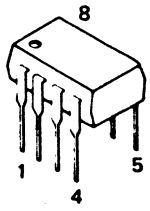
- HA1457



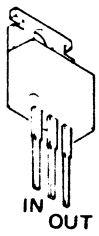
- LN324N



- CX-065A



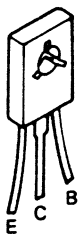
- NJM4558D



- FS-7812M
- FS-7815M

BI-POLAR TRANSISTORS

- 2SD330



- 2SB744
- 2SD794

- 2SD400
- 2SB544

- 2SC535
- 2SC536
- 2SC930
- 2SC1570
- 2SC1571
- 2SA659
- 2SA733

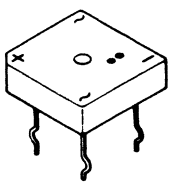
- 2SK41
- 2SD49

DIODES

- RD-3.0E
- RD-6.2E
- RD-18EB3
- RD-22EB4
- RD-24FBD
- 1S188FM
- 1S553T
- DS442
- DS130T
- 10D1

- 1SV55

- L5630



- S5VB20